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Nuclear Chemistry

Phase Transitions in Leucite Determined by High Temperature, Single Crystal X-ray Diffraction, Yoshiaki Ito, Scott Kuehner and Subcata Ghose, *Zeit. Kristallogr.*, **197**, 75–84, (1991).

Variable-Temperature X-ray Diffraction Analysis of the Behavior of the Mobile Fluorine Ions in a Superionic Conductors, β - PbF_2 , Yoshiaki Ito, Kichiro Koto, Sinzo Yoshikado, Tadashi Ohachi, Fumikazu Kanamaru and Takeshi Mukoyama, *J. Solid State Chem.*, **95**, 94–98, (1991).

Acceleration of the Fluorination of Benzyl Halide by the Combination of Lead Fluoride and Sodium Salt, Junko Ichihara, Terukiyo Hanafusa, Yoshio Takai and Yoshiaki Ito, *Chem. Lett.*, 1161–1164, (1992).

Series-Connected STJ Detector with Large Sensitive Area, M. Kurakado, A. Matumura, T. Takahashi, S. Ito, R. Katano and Y. Isozumi, "Proceeding of the Workshop X-ray Detection by Superconducting Tunnel Junctions, Naples, Italy, 12–14 December, 1990," edited by A. Barone, R. Cristiano and S. Pagano, World Scientific Publishing Co. Pte. Ltd., 76–109, (1991).

New Readout Technique for Two-Dimensional Position-Sensitive Detectors, T. Mizogawa, Y. Awaya, Y. Isozumi, R. Katano, S. Ito and N. Maeda, *Nucl. Instr. and Methods.*, **A312**, 547, (1992).

Application of Carbon Fibers to the Resistive Wire Anode of Position-Sensitive Proportional Counters for Soft X-Rays (100–1000 eV), Y. Isozumi, Y. Chen and R. Katano, *Bull. Inst. Chem. Res., Kyoto Univ.*, **69**, 536, (1992).

Detection Efficiency of Position-Sensitive Proportional Counter for Low (100–1000 eV) and High (1–100 KeV) Energy X Rays, Y. Isozumi, N. Takahashi and S. Ito, *Bull. Inst. Chem. Res., Kyoto Univ.*, **69**, 543, (1992).

Total Cross Sections in $\mu\pm$, $\pi\pm \rightarrow \text{H}(1s)$ Collisions, G. Hock, K. Tökési, H. Nakamatsu and T. Mukoyama, *ATOMKI/Ann. Rep.*, **69**, (1991).

Theoretical Study of X-Ray Spectroscopies by the DV- $X\alpha$ Method, H. Adachi, H. Nakamatsu and T. Mukoyama, *X-sen Bunseki no Sinpo*, **23**, 19, (1992), in Japanese.

DV- $X\alpha$ Molecular Orbital Method for X-ray Absorption Near Edge Structure, H. Nakamatsu, T. Mukoyama and H. Adachi, "7th Int. Conf. X-ray Absorption Fine Structure," T01, (1992).

Theoretical Study of Relativistic Effects in the Electronic Structure and Chemical Bonding of UF₆, J. Onoe, K. Takeuchi, R. Sekine, H. Nakamatsu, T. Mukoyama and H. Adachi, "4th Int. Symp. Advanced Nuclear Energy Research," 124, (1992).

REC MS of Fatty Acids-MO Studying, V.G. Voinov, V.E. Dorofeyev, N.E. Petrachenko, H. Nakamatsu and T. Mukoyama, "Int. Conf. Biological Mass Spectrometry," WP72, (1992).

Systematic Study of Helium-Induced L Shell Ionization Cross Sections, L. Sarkadi and T. Mukoyama, *Nucl. Instrum. Methods Phys. Res.*, **B61**, 167-174, (1991).

Distortion Approximation for Inner-Shell Ionization Cross Sections in Ion-Atom Collisions using Relativistic Pseudostates, T. Mukoyama and C.-D. Lin, *Z. Phys. D-At. Mol. Clusters*, **21**, S237-238, (1991).

Atomic Excitation and Ionization as the Result of Vacancy Production, T. Mukoyama and K. Taniguchi, *Bull. Inst. Chem. Res., Kyoto Univ.*, **70**, 1-9, (1992).

Theoretical X-ray Absorption Spectra of SF₆ and H₂S, H. Nakamatsu, T. Mukoyama and H. Adachi, *J. Chem. Phys.*, **95**, 3167, (1991).

Computation of Symmetry Orbitals for Point Groups, H. Nakamatsu, T. Mukoyama and H. Adachi, *Bull. Inst. Chem. Res., Kyoto Univ.*, **69**, 342, (1991).

Relativistic Molecular Orbital Calculations for Polyatomic Molecules, H. Nakamatsu, T. Mukoyama and H. Adachi, *Bull. Inst. Chem. Res., Kyoto Univ.*, **70**, 16, (1992).

Theoretical Study on the UV Excited States of UF₆ Using the Discretevariational Dirac-Slater Calculaton Method, J. Onoe, K. Takeuchi, H. Nakamatsu, T. Mukoyama, R. Sekine and H. Adachi, *Chem. Phys. Lett.*, **196**, 636 (1992).

Multiple Ionization in Ion-atom Collisions, T. Mukoyama and S. Ito, *Bull. Inst. Chem. Res., Kyoto Univ.*, **69**, 350-357, (1991).

Measurement of the Mass of the Electron Neutrino using Electron Capture in ¹⁶³Ho, S. Yasumi, S. Kishimoto, T. Mukoyama, H. Maezawa, Y. Inagaki, K. Shima, K. Sera, M. Fujioka, T. Omori and G. Izawa, *Photon Factory Activity Report 1991*, (National Laboratory for High Energy Physics, Tsukuba, Japan), **9**, 20, (1992).

Relative Strength ($\Delta S = 1$)/[($\Delta S = 0$) + ($\Delta S = 1$)] of Isovector Spin Excitations in the High-Lying Resonance Region of ¹²C, S. Nakayama, T. Yamagata, M. Tanaka, M. Inoue, K. Yuasa, T. Itahashi, H. Ogata, N. Koori and K. Shima, *Phys. Rev. Lett.*, **67**, 1082, (1991).

Spin-Flip and non Spin-flip Excitations in the (⁷Li, ⁷Be) Reaction, S. Nakayama, T. Yamagata, M. Tanaka, M. Inoue, K. Yuasa, T. Itahashi, H. Ogata, N. Koori, K. Shima and M.B. Greenfield, *Nucl. Phys. A*, **538**, 627c, (1992).

Breakup Reactions on ⁴He by Polarized Protons at 74.6 MeV, S. Kakigi, K. Fukunaga, T. Hayashi, A. Okihana and T. Sekioka, *RCNP Annual Report 1990 (Osaka University)*,

45, (1991).

Quasifree Scattering in the ${}^6\text{Li}(\alpha, 2\alpha) {}^2\text{H}$ Reaction at 80 to 120 MeV, A. Okihana, R.E. Warner, M. Fujiwara, N. Matsuoka, K. Fukunaga, S. Kakigi, T. Hayashi, J. Kasagi, N. Koori and M. Tosaki, *RCNP Annual Report 1990 (Osaka University)*, 48, (1991).

Dependence of Pulse Heights on the Incident Position of Alpha-particles for CsI(Tl) Scintillator with Photodiode Readout System, S. Kakigi, K. Fukunaga, T. Hayashi, A. Okihana, T. Konishi and T. Sekioka, *Bull. Inst. Chem. Res., Kyoto Univ.*, **70**, 10, (1992).

Quasifree Scattering in the ${}^6\text{Li}(\alpha, 2\alpha) {}^2\text{H}$ Reaction at E_α between 77 and 119 MeV, A. Okihana, T. Konishi, R.E. Warner, D. Francis, M. Fujiwara, N. Matsuoka, K. Fukunaga, S. Kakigi, T. Hayashi, K. Kasagi, N. Koori, M. Tosaki and M. Greenfield, "Few Body Problems in Physics; Proceedings of the 13th International IUPAP Conference on Few Body Problems in Physics (Few Body XIII), Adelaide, S.A., Australia, Jan. 5-11, 1992" 66, (1992).

${}^7\text{Li}(\alpha, 2\alpha) {}^3\text{H}$ Reaction from 77 to 119 MeV, R.E. Warner, A. Okihana, M. Fujiwara, N. Matsuoka, S. Kakigi, S. Hayashi, K. Fukunaga, J. Kasagi and M. Tosaki, *Phys. Rev. C*, **45**, 2328, (1992).

Development of Linear Accelerators at ICR Kyoto University, M. Inoue, H. Ego, H. Fujisawa, H. Fujita, K. Fukunaga, Y. Iwashita, S. Kakigi, H. Okamoto, T. Shirai and H. Takekoshi, "Proceedings of the 4th China-Japan Joint Symposium on Accelerators for Nuclear Science and their Applications," 155, (1990).

Accelerator Plan for Medical Treatment with Charged Particles at Kyoto University, A. Noda, H. Ego, K. Fujita, K. Fukunaga, S. Kakigi, Y. Iwashita, H. Okamoto, T. Shirai and M. Inoue, "Proceedings of the NIRS International Workshop on Heavy Charged Particle Therapy and Related Subjects," 182, (1991).

RF Measurement of 433 MHz Circulator, T. Shirai, Y. Iwashita, H. Ego, H. Okamoto, A. Noda and M. Inoue, "Proceedings of the 16th Linear Accelerator Meeting in Japan," 100, (1991).

Present Status of 7 MeV Proton Linac at Kyoto University, Y. Iwashita, H. Ego, H. Fujita, K. Fukunaga, M. Inoue, S. Kakigi, A. Noda, H. Okamoto and T. Shirai, "Proceedings of the 8th Symposium on Accelerator Science and Technology," 52, (1991).

Design and Construction of a Heavy Ion RFQ Linac, H. Fujisawa, Y. Iwashita, A. Noda and M. Inoue, "Proceedings of the 8th Symposium on Accelerator Science and Technology," 122, (1991).

RF Characteristics of 433 MHz RFQ, T. Shirai, Y. Iwashita, H. Ego, H. Okamoto, A. Noda and M. Inoue, "Proceedings of the 8th Symposium on Accelerator Science and Technology," 125, (1991).

Stability of 1D Waterbag-type Beams, H. Okamoto, "Proceedings of the 8th Symposium on Accelerator Science and Technology," 392, (1991).

Alternating Phase Focused Structures, H. Okamoto, "Proceedings of the 8th Symposium on Accelerator Science and Technology," 401, (1991).

Design Study of Proton Synchrotrons for Medical Use at Kyoto University, Y. Miyauchi, H. Sakae, M. Ogoshi, M. Inoue and A. Noda, "Proceedings of the 8th Symposium on Accelerator Science and Technology," 413, (1991).

Second Order Analysis for a Compact Proton Synchrotron, H. Sakae, Y. Miyauchi, M. Ogoshi, S. Mandai, M. Inoue and A. Noda, "Proceedings of the 8th Symposium on Accelerator Science and Technology," 416, (1991).

Proton Therapy Accelerator Project at Kyoto University, M. Inoue, A. Noda, Y. Iwashita, Y. Miyauchi, H. Sakae and M. Ogoshi, "Proceedings of the 8th Symposium on Accelerator Science and Technology," 459, (1991).

Mechanical Design of 33.3 MHz 4-Rod Heavy Ion RFQ Cavity, H. Fujisawa, M. Tamada, T. Katagiri, Y. Iwashita and H. Takekoshi, *Bull. Inst. Chem. Res., Kyoto Univ.*, **70**, 28, (1992).

Improvement of the Proton Accelerator System, A. Noda, Y. Iwashita, H. Dewa, H. Ego, H. Okamoto, S. Kakigi, T. Shirai, H. Takekoshi, K. Fukunaga, H. Fujita and M. Inoue, *Bull. Inst. Chem. Res., Kyoto Univ.*, **70**, 37, (1992).

High Power Dummy-Load for RF System in the Linac, T. Shirai, H. Dewa, H. Ego, M. Inoue, Y. Iwashita, A. Noda, H. Okamoto and H. Takekoshi, *Bull. Inst. Chem. Res., Kyoto Univ.*, **70**, 45, (1992).

Lifetime Control in Thyristors by Proton Irradiation, H. Akiyama, H. Kondoh, K. Satoh, T. Nakagawa, T. Fujimoto, Y. Iwashita and M. Inoue, *Bull. Inst. Chem. Res., Kyoto Univ.*, **70**, 55, (1992).

The Effect of Biasing the Plasma Electrode on Hydrogen Ion Formations in a Multi-cusp Ion Source, H. Ego, Y. Iwashita and H. Takekoshi, *Bull. Inst. Chem. Res., Kyoto Univ.*, **70**, 61, (1992).

Lattice Design of a Proton Synchrotron for Medical Use, Y. Miyauchi, H. Sakae, M. Ogoshi, M. Inoue and A. Noda, *Bull. Inst. Chem. Res., Kyoto Univ.*, **70**, 71, (1992).

Design Study of a Beam Matching Section for the ICR Proton Linac, H. Dewa, Y. Iwashita, H. Okamoto, A. Noda, T. Shirai and M. Inoue, *Bull. Inst. Chem. Res., Kyoto Univ.*, **70**, 89, (1992).

Cold Model Test of a Four Vane RFQ for Multi-Purpose Use Linac, K. Ikeda, T. Kan, K. Yoshizawa, J. Hirota, Y. Iwashita, H. Okamoto, A. Noda and M. Inoue, *Bull. Inst. Chem. Res., Kyoto Univ.*, **70**, 99, (1992).

Dielectronic Recombination of He^+ in a Storage Ring, T. Tanabe, M. Tomizawa, K. Chida, T. Watanabe, M. Yoshizawa, H. Muto, K. Noda, M. Kanazawa, A. Ando and A. Noda, *Phys. Rev. A*, **45**, 276, (1992).

Design Study of Compact Proton Synchrotron for Biomedical Use, A. Noda, Y. Iwashita, H. Okamoto, T. Shirai and M. Inoue, "Contribution Paper to the 3rd European Particle Accelerator Conference, Berlin, March, 1992," (1992).

Performance of the RFQ and Alvarez Linac at Kyoto University, T. Shirai, H. Dewa, H. Fujita, Y. Iwashita, S. Kakigi, H. Okamoto, A. Noda and M. Inoue, "Contribution Paper to the 3rd European Particle Accelerator Conference, Berlin, March, 1992," (1992).

Slow Beam Extraction at TARN II, A. Noda, K. Noda, M. Kanazawa, A. Ando, H. Muto and T. Hattori, "Contribution Paper to the 3rd European Particle Accelerator Conference, Berlin, March, 1992," (1992).

Particle Therapy with Reactors and Accelerators, M. Inoue, *Nippon Genshiryoku Gakkaishi*, **34**, 101, (1992), in Japanese.

Velocity Distribution of Ion Beams from the RIKEN IGISOL, M. Koizumi, A. Yoshida, K. Morita, M. Takami, T.T. Inamura, M. Azuma, H. Katsuragawa, M. Nakaoka, I. Nakamura, T. Ishizuka, T. Murayama, A. Iivonen, K. Valli, K. Shimomura, S. Matsuki and I. Sugai, *Nucl. Instrum. Methods Phys. Res.*, **A313**, 1-10, (1992).

Lattice Location and Ionic State of Tm Ions Implanted into CaF₂, Y. Kido, H. Nakano, T. Harami, K. Ishii, S. Yamashita, K. Shimomura and S. Matsuki, *Phys. Rev.*, **B45**, 4572-4578, (1992).

Physical Chemistry

Molecular Orientation in Thin Langmuir-Blodgett Films of Dipalmitoylphosphatidylcholine as Studied by FTIR Transmission and Reflection-Absorption Spectroscopy, E. Okamura, J. Umemura and T. Takenaka, *Can. J. Chem.*, **69**, 1691, (1991).

High-Sensitivity Raman Spectroscopic Study on Surface-Pressure Dependence of the Structure in Thin Langmuir-Blodgett Films of Dipalmitoylphosphatidylcholine, E. Okamura, J. Umemura and T. Takenaka, *J. Raman Spectrosc.*, **22**, 759, (1991).

Fourier Transform Infrared/Attenuated Total Reflection Study on Subtransition of Hydrated Dipalmitoylphosphatidylcholine Multibilayers, E. Okamura, J. Umemura and T. Takenaka, *Vibrational Spectrosc.*, **2**, 95, (1991).

New Potential Energy Functions Suitable for Computer Simulation, S. Hayashi, *Bull. Inst. Chem. Res., Kyoto Univ.*, **69**, 439, (1991).

Contact Angle Measurements with Sessile Drops and Bubbles, A.S. Dimitrov, P.A. Kralchevsky, A.D. Nikolov, H. Noshi and M. Matsumoto, *J. Colloid Interface Sci.*, **145**, 279, (1991).

Two-Dimensional Crystallization of Proteins on Mercury, H. Yoshimura, S. Endo, K. Nagayama and M. Matsumoto, *Oyo Butsuri*, **60**, 1022, (1991), in Japanese.

A Comparative Study on Interactions of α -Aminoisobutyric Acid Containing Antibiotic Peptides, Trichopolyn I, and Hypelcin A with Phosphatidylcholine Bilayers, K. Matsuzaki,

T. Shioyama, E. Okamura, J. Umemura, T. Takenaka, Y. Takaishi, T. Fujita and K. Miyajima, *Biochim. Biophys. Acta*, **1070**, 419, (1991).

Quantative Evaluation of Molecular Orientation in Thin Langmuir-Blodgett Films by FT-IR Spectroscopy and its Application to the Study of Structure-Function Relationship, T. Takenaka, J. Umemura, T. Kawai, T. Kamata and N. Koizumi, "8th International Conference on Fourier Transform Spectroscopy: September 1-6 1991, Lübeck-Travemünde/ proceedings, editors, H.M. Heise, E.H. Korte, H.W. Siesler (Proceedings of SPIE, v. 1575)," 143, (1992).

Infrared Reflection-Absorption Spectra of Ultrathin Organic Films, T. Takenaka, *Hyomen Kagaku*, **12**, 375, (1992), in Japanese.

Polarized FT-IR Spectra of Water in Dodecylprophldimethylammonium Bromide Monohydrate, N. Kimura, *J. Phys. Chem.*, **96**, 7126, (1992).

Fourier Transform Infrared Metal Overlayer Attenuated Total Reflection Spectra of Langmuir-Blodgett Films of 12-Hydroxystearic Acid and its Cadmium Salt, T. Hasegawa, J. Umemura and T. Takenaka, *Thin Solid Films*, **210/211**, 583, (1992).

On the Relationship between the Permeation of Monolayers and Their Microstructure, M. Matsumoto and G.T. Barnes, *J. Colloid Interface Sci.*, **148**, 280, (1992).

Resonance Raman Spectra of Spread Monolayers of Cetyl Organge on Water Surface and Thin LB Films, T. Takenaka, H. Matsuda, T. Kawai and Umemura, "Proceedings of XIII International Conference on Raman Spectroscopy, 31 August-4 September 1992, Würzburg, Germany/edited by W. Kiefer... [et al.] Chichester; New York: J. Wiley, c1992," 694, (1992).

Thickness and Monolayer-Position Dependence of Thermal Stability of Metal Stearate LB Films by IR Reflection-Absorption Spectroscopy, T. Takenaka, S. Takeda, T. Hasegawa, T. Kamata and J. Umemura, "Proceedings of XXI European Congress on Molecular Spectroscopy," 432, (1992).

Molecular Orientation and Structure-Function Relationship in Thin LB Films—Studies by FT-IR Spectroscopy, T. Takenaka, J. Umemura, T. Kamata, T. Kawai and N. Koizumi, "Proceedings of the International Symposium on Functional Langmuir-Blodgett Films," **1**, 57, (1992).

Recent Progress on Spectroscopic Measurements of Spread Monolayers on Water Surface, T. Takenaka, *Hyomen Kagaku*, **13**, 1, (1992), in Japanese.

Molecular Orientation and Function in Thin LB Films, T. Takenaka, *Maku*, **17**, 101, (1992), in Japanese.

Dark-Field Electron Microscope Studies on One-Layer LB Films of Fatty Acid and Its Metal Salt, M. Matsumoto, *Nippon Setchaku Gakkaishi*, **28**, 250, (1992), in Japanese.

Thermal Behavior of Stage-2 FeCl₃ Graphite Intercalation Compound Studied by Analytical Electron Microscopy, K. Nagai, H. Kurata, S. Isoda and T. Kobayashi, *J. Phys.*

Chem. Solids, **53**, 883–888, (1992).

Structure of Perylene-Tetracarboxylic-Dianhydride thin Films on Alkali Halide Crystal Substrates, M. Möbus, N. Karl and T. Kobayashi, *J. Cryst. Growth*, **116**, 495–504, (1992).

EELS Study of Radiation Damage in Chlorinated Cu-Phthalocyanine and Poly GeO-Phthalocyanine, H. Kurata, S. Isoda and T. Kobayashi, *Ultramicroscopy*, **41**, 33–40, (1992).

A Comparative Study of the Modulation Transfer Function of an Imaging Plate, S. Isoda, K. Saitoh, T. Ogawa, S. Moriguchi and T. Kobayashi, *Ultramicroscopy*, **41**, 99–104, (1992).

Epitaxial Growth of Organic Crystals on Organic Substrates-Polynuclear Aromatic Hydrocarbons, A. Hoshino, S. Isoda and T. Kobayashi, *J. Cryst. Growth*, **115**, 826–830, (1991).

Molecular Imaging of Epitaxially Grown Organic Double-Layer, S. Isoda, I. Kubo, A. Hoshino, N. Asaka, H. Kurata and T. Kobayashi, *J. Cryst. Growth*, **115**, 388–392, (1991).

Epitaxial Growth and Polymorphism of Phthalocyaninato-Thorium, T. Kobayashi and S. Isoda, *Bull. Inst. Chem. Res., Kyoto Univ.*, **69**, 193–198, (1991).

Epitaxial Growth of n-Tetracontane Observed by High Resolution Electron Microscopy, S. Isoda, T. Maeda and T. Kobayashi, *Bull. Inst. Chem. Res., Kyoto Univ.*, **69**, 155–164, (1991).

Electron Diffraction Studies of Stage-2 AlCl_3 -GIC, K. Nagai, H. Kurata, S. Isoda and T. Kobayashi, *Synth. Met.*, **45**, 27–34, (1991).

Three-dimensional Structure of AlCl_3 in Stage-1 AlCl_3 -GIC, K. Nagai, H. Kurata, S. Isoda and T. Kobayashi, *Synth. Met.*, **48**, 99–109, (1992).

Dependence of DC-Resistivity on Morphology in Polypyrroles, S. Isoda, Y. Kita, N. Donkai, Y. Sano and G. Wegner, *Bull. Inst. Chem. Res., Kyoto Univ.*, **69**, 331–341, (1991).

Interface Structure of Organic Multi-layers, S. Isoda, A. Hoshino and T. Kobayashi, *Kobunshi Kakou*, **41**, 54–58, (1992), in Japanese.

Interface Structure of Organic Double-Layers by High Resolution Electron Microscopy, S. Isoda and T. Kobayashi, *Nippon Setchaku Gakkaishi*, **28**, 30–37, (1992), in Japanese.

Characterization of Organic Ultra-thin Films by Penning Ionization Electron Spectroscopy during Layer-by-layer Preparation: TFTCNQ, TMTSF and their Charge Transfer Complex, Y. Harada, H. Hayashi, S. Masuda, T. Fukuda, N. Sato, S. Kato, K. Kobayashi, H. Kuroda and H. Ozaki, *Surf. Sci.*, **242**, 95, (1991).

UV-photoelectron Spectroscopy of One- and Two-Component Organic Crystals, N. Karl and N. Sato, *Mol. Cryst. Liq. Cryst.*, **218**, 79, (1992).

The Electronic Structure of Poly(*p*-phenylene Vinylene), N. Sato, M. Lögdlund, R. Lazzaroni, W.R. Salaneck, J.-L. Brédas, D.D.C. Bradley, R.H. Friend and K.E. Ziemelis, *Chem. Phys.*, **160**, 299, (1992).

UV Photoemission Spectroscopic Studies on Molecular Aggregation of Triphenylamines Dispersed in Polycarbonate Thin Films, N. Sato and M. Yoshikawa, *Chem. Phys.*, **160**, 289, (1992).

Threshold Ionization Energy of C₆₀ in the Solid State, N. Sato, Y. Saito and H. Shinohara, *Chem. Phys.*, **162**, 433, (1992).

Linearly Condensed Polythiophenes: Characteristic Molecular Aggregation of Thieno [2'',3'':4',5'] Thieno [2',3'-d: Thieno [3,2-*b*] Thiophene Crystals Revealed by Ultraviolet Photoelectron Spectroscopy, N. Sato, Y. Mazaki, K. Kobayashi and T. Kobayashi, *J. Chem. Soc. Perkin Trans. 2*, 765, (1992).

Measurement and Calculation of the Dipole Moment of Small Proteins, S. Takashima and K. Asami, "Proceedings of Int. Symp. on Colloid and Molecular Electro-Optics" 187, (1991).

Dielectric Analysis of Sheep Erythrocyte Ghost. Examination of Applicability of Dielectric Mixture Equations, H. Kaneko, K. Asami and T. Hanai, *Colloid Polym. Sci.*, **269**, 1039, (1991).

Dielectric Monitoring of Biological Cell Sedimentation, K. Asami and T. Hanai, *Colloid Polym. Sci.*, **270**, 78, (1992).

On-Line Monitoring of Cell Concentrations by Dielectric Measurements, K. Mishima, A. Mimura, Y. Takahara, K. Asami and T. Hanai, *J. of Fermentation and Bioengineering*, **72**, 291, (1991).

Dielectric Monitoring of Gas Production in Fermenting Bread Dough, M. Ito, S. Yoshikawa, K. Asami and T. Hanai, *Cereal Chem.*, **69**, 325, (1992).

Dielectric Analysis of Outer Membrane Vesicles Isolated from Rat Liver Mitochondria, K. Asami and A. Irimajiri, *Bull. Inst. Chem. Res., Kyoto Univ.*, **69**, 390, (1991).

Dielectric Properties of Erythrocytes Treated with Membrane-Interacting Antibiotics, H. Kaneko, K. Asami and T. Hanai, *Bull. Inst. Chem. Res., Kyoto Univ.*, **69**, 399, (1991).

Two Types of Reconstituted Model Membranes as Viewed from A.C. Impedance, S. Morita, K. Asami and T. Hanai, *Bull. Inst. Chem. Res., Kyoto Univ.*, **69**, 404, (1991).

Dielectric Modeling of Biological Cells. Models and Algorithm, A. Irimajiri, T. Suzaki, K. Asami and T. Hanai, *Bull. Inst. Chem. Res., Kyoto Univ.*, **69**, 421, (1991).

Dielectric Relaxation of Liquid Crystalline Cyanoethylated *O*-(2,3-Dihydroxypropyl)cellulose, T. Sato, Y. Tsuji, Y. Kita, T. Fukuda and T. Miyamoto, *Macromolecules*, **24**, 4691, (1991).

Preparation and Dielectric Properties of Cellulose Derivatives with High-polarity Sub-

stituents, T. Sato, Y. Tsujii, M. Minoda, Y. Kita and T. Miyamoto, *Makromol. Chem.*, **193**, 647, (1992).

Synthesis and Electric Properties of Cellulose Derivatives with High-dielectric Constants, T. Miyamoto, T. Sato, Y. Tsujii and Y. Kita, *J. Soc. Fib. Sci. Technol. Jpn.*, **48**, 7, (1991), in Japanese.

Dependence of DC-Resistivity on Morphology in Polypyrroles, S. Isoda, Y. Kita, N. Donkai, Y. Sano and G. Wegner, *Bull. Inst. Chem. Res., Kyoto Univ.*, **69**, 331, (1991).

Nonlinear Dielectric Properties of Cyanoethylated O-(2,3-Dihydroxypropyl)cellulose in Ultra Low Frequency Region, Y. Kita, T. Hanai and T. Sato, *Bull. Inst. Chem. Res., Kyoto Univ.*, **69**, 444, (1991).

Dielectric Analysis of PMMA Microcapsules Containing an Aqueous KCl Solution to Derive a Distribution Function of the Release Rate of KCl, K. Sekine and T. Hanai, *Colloid Polym. Sci.*, **269**, 880, (1991).

Dielectric Analysis of Microcapsules, K. Sekine, H. Zhang and T. Hanai, *Bull. Inst. Chem. Res., Kyoto Univ.*, **69**, 450, (1991).

Electrochemical Properties of Cellulose Acetate Membranes in Aqueous Electrolyte Solutions Containing Hydrophobic Ions, K. Asaka and T. Hanai, *Bull. Inst. Chem. Res., Kyoto Univ.*, **69**, 300, (1991).

Dielectric Analysis of Concentration Polarization Phenomena at Cation-exchange Membrane/Solution Interfaces by Frequency Variation and D.C. Bias Application, K. Zhao, Y. Matsubara, K. Asaka, K. Asami and T. Hanai, *J. Membr. Sci.*, **64**, 163, (1991).

Dielectric Theory of Concentration Polarization. Relaxation of Capacitance and Conductance for Electrolyte Solutions with Locally Varying Conductivity, T. Hanai, K. Zhao, K. Asaka and K. Asami, *J. Membr. Sci.*, **64**, 153, (1991).

D.C. Bias Effect on the Dielectric Behaviour of Some Disperse Systems, K. Zhao and T. Hanai, *Bull. Inst. Chem. Res., Kyoto Univ.*, **69**, 358, (1991).

Dielectric Properties of FeTiO_3 , K. Iwauchi, M. Kiyama and T. Nakamura, *Phys. Stat. Sol. (a)*, **127**, 567, (1991).

Magnetic Relaxation of $\text{La}_{1.8}\text{Sr}_{0.2}\text{CuO}_{4-\delta}$ at T_c , K. Iwauchi, *Physica C*, **185-189**, 2509, (1991).

Dielectric Properties of monoclinic Hollandite $\text{Ba}_x\text{Ti}_{4-2x}\text{Fe}_{2x}\text{O}_8$ ($x = 0.67$), K. Iwauchi and Y. Ikeda, *Phys. Stat. Sol. (a)*, **130**, 449, (1992).

Dielectric Relaxation of La_2CuO_4 and $\text{La}_{1.95}\text{Sr}_{0.05}\text{CuO}_{4-\delta}$ at Low Temperatures, K. Iwauchi, *Phys. Stat. Sol. (a)*, **130**, 219, (1992).

Dielectric Properties of $\alpha\text{-Fe}_2\text{O}_3$, K. Iwauchi and M. Kiyama, *Bull. Inst. Chem. Res., Kyoto Univ.*, **69**, 375, (1991).

Analytical and Inorganic Chemistry

Determination of Organometallic and Inorganic Germanium by Inductively Coupled Plasma Atomic Emission Spectrometry, Y. Sohrin, *Analy. Chim. Acta*, **247**, 1, (1991).

Liquid-Liquid Extraction of Cinchona Alkaloids by Using Some Metal Complexes of Optically Pure Usnic Acids, S. Tsurubou, T. Sakai, S. Kihara and M. Matsui, *Analy. Chim. Acta*, **248**, 501, (1991).

Steric Effects of Polymethylene Chain Length on the Liquid-Liquid Extraction of Ni(II) and Zn(II) with Bis(4-Acylpyrazol-5-One) Derivatives in the Presence or Absence of Tri-n-Octylphosphine Oxide, S. Miyazaki, H. Mukai, S. Umetani, S. Kihara and M. Matsui, *Analy. Chim. Acta*, **249**, 525, (1991).

Elucidation of the Oscillation of the Potential Difference Accompanied by Ion Transfer at a Liquid/Liquid or Liquid/Membrane Interface Using Ion-Transfer Voltammetry, S. Kihara, K. Maeda, O. Shirai, M. Suzuki, K. Ogura and M. Matsui, *Bunseki Kagaku*, **40**, 767, (1991), in Japanese.

Studies on ^1H - and ^{13}C -NMR of 4-Acyl-5-Pyrazolone Derivatives as Extraction Reagents and their Complex Formation with Metal Ions, S. Umetani, H. Takahara, M. Matsui, T. Nakamura and T. Matsumura-Inoue, "Proceedings of Symposium on Solvent Extraction 1991," 193, (1991).

Formation of Halide Complexes of Methyl- and Inorganic Germanium(IV) in Aqueous Hydrohalogenic Acid Solutions, Y. Sohrin, *Bull. Chem. Soc. Jpn.*, **64**, 3363, (1991).

Complex Formation Reaction of Polypyrazolyborates with Divalent Metal Ions in Aqueous Solution Studied by Solvent Extraction Technique, H. Kokusen, Y. Sohrin, S. Kihara and M. Matsui, *Analytical Sciences*, **7**, Supplement, 7, (1991).

Liquid-Liquid Extraction of Methylated and Inorganic Germanium as the Halide Complex, Y. Sohrin, S. Kihara and M. Matsui, *Analytical Sciences*, **7**, Supplement, 17, (1991).

Voltammetric Study on the Oscillation of the Potential Difference at a Liquid/Liquid or Liquid/Membrane Interface Accompanied by Ion Transfer, S. Kihara, K. Maeda, M. Suzuki, Y. Yoshida and M. Matsui, *Analytical Sciences*, **7**, Supplement, 601, (1991).

Voltammetry for the Ion Transfer through a Membrane, O. Shirai, S. Kihara, M. Suzuki, K. Ogura and M. Matsui, *Analytical Sciences*, **7**, Supplement, 607, (1991).

Salt Effect on the Transfer of Ions at Liquid/Liquid Interface Studied by Polarography with Aqueous Electrolyte Dropping Electrode, K. Ogura, S. Kihara, M. Suzuki, O. Shirai and M. Matsui, *Analytical Sciences*, **7**, Supplement, 615, (1991).

The Ion Transfer from Aqueous(W), Formamide(FA) or W-FA Mixtures to Organic Solution Studied by Polarography at the Electrolyte Solution Dropping Electrode, M. Suzuki, S. Kihara, K. Ogura, O. Shirai and M. Matsui, *Analytical Sciences*, **7**, Supplement, 623, (1991).

Abiotic Photosynthesis of Substances Relative to the Origin of Life from Aqueous Ammonium Carbonate Solutions, S. Kihara, M. Sanada, S. Kuwada, Y. Sohrin, O. Shirai, H. Kokusen, M. Suzuki and M. Matsui, *Analytical Sciences*, **7**, Supplement, 663, (1991).

Voltammetric Analysis of Chemical Reactions at Liquid/Liquid or Liquid/Membrane Interfaces, S. Kihara, K. Maeda, M. Suzuki, Y. Sohrin, O. Shirai and M. Matsui, *Analytical Sciences*, **7**, Supplement, 1415, (1991).

Coprecipitation of Cadmium with Calcium Carbonate from Aqueous Solutions at 15 to 50°C, T. Kumagai and M. Matsui, *Radioisotopes*, **41**, 57, (1992).

Solvent Extraction of Divalent Metals as Dihydrobis(1-Pyrazolyl)Borate Chelates, N. Yasuda, H. Kokusen, Y. Sohrin, S. Kihara and M. Matsui, *Bull. Chem. Soc. Jpn.*, **65**, 781, (1992).

Ligand Design for Selective Chemical Separation, M. Matsui, *Bunseki*, 183, (1992), in Japanese.

Ion Transfer from Aqueous to Mixed Organic Solution Studied by Polarography at the Electrolyte Dropping Electrode, M. Suzuki, S. Kihara and M. Matsui, *Bull. Inst. Chem. Res., Kyoto Univ.*, **69**, 526, (1992).

Some Experimental Results Relating to Cold Nuclear Fusion, O. Shirai, S. Kihara, Y. Sohrin and M. Matsui, *Bull. Inst. Chem. Res., Kyoto Univ.*, **69**, 550, (1992).

A Geochemical Study on the Specific Distribution of Barium in Lake Biwa, Japan, M. Sugiyama, T. Hori, S. Kihara and M. Matsui, *Geochim. et Cosmochim. Acta*, **56**, 597, (1992).

Study of Solvent Extraction Process by Ion-Transfer Polarography at the Liquid/Liquid Interface, Z. Yoshida, H. Aoyagi, E. Tachikawa and S. Kihara, "Solvent Extraction 1990: proceedings of the International Solvent Extraction Conference (ISEC '90)," 225, (1992).

Adduct Formation Properties of Some Polydentate Phosphine Oxides in the Synergistic Extraction of Metals with 4-Acyl-5-Pyrazolone Derivatives, S. Umetani, S. Kihara and M. Matsui, "Solvent Extraction 1990: proceedings of the International Solvent Extraction Conference (ISEC '90)," 309, (1992).

Studies on the Concentration Change of Hydrogen Ions and Potassium Ions in a Culture Solution during the Germination and Growing Period of Radish, O. Fujino, M. Matsui, S. Kihara, Y. Sohrin and M. Suzuki, *Nippon Kagaku Kaishi*, 580, (1992), in Japanese.

Steric Effects of Polymethylene Chain Length on the Liquid-Liquid Extraction of Be(II), Sc(III) and Y(III) with Bis(4-Acylpyrazol-5-One) Derivatives, S. Miyazaki, H. Mukai, S. Umetani, S. Kihara and M. Matsui, *Anal. Chim. Acta*, **259**, 25, (1992).

Voltammetry for Charge Transfer at the Liquid/Liquid or Liquid/Membrane Interface as the Method for the Analysis of Interfacial Reactions, S. Kihara and M. Matsui, *Hyoumen*, **30**, 367, (1992), in Japanese.

Structure of PbO-Bi₂O₃-Ga₂O₃ Glasses, F. Miyaji and S. Sakka, *J. Non-Crystal. Solids*, **134**, 77–85, (1991).

Coordination of Ga³⁺ Ion in PbO-Ga₂O₃ Glasses as Determined by ⁷¹Ga NMR, F. Miyaji, K. Tadanaga, T. Yoko and S. Sakka, *J. Non-Crystal. Solids*, **139**, 268–270, (1992).

Nonlinear Optical Properties of MO_x-PbO-GaO_{1.5} Glasses, F. Miyaji, K. Tadanaga, T. Yoko and S. Sakka, "Proc. Int. Con. Science and Technology of New Glasses, eds. by S. Sakka and N. Soga," 376, (1991).

Microwave Synthesis of Metal Carbides, H. Kozuka and J.D. Mackenzie, *Ceramic Transactions*, **21**, 387, (1991).

Formation and Chemical Durability of Na-Si-O-N and Na-Al-Si-O-N Oxynitride Glasses, J. Jin, S. Sakka, H. Kozuka and T. Yoko, *J. Ceram. Soc. Japan*, **100**[6], 841–846, (1992), in Japanese.

Preparation of Superconducting YBa₂Cu₄O₈ by the Sol-Gel Method, S. Fujihara, H. Zhuang, T. Yoko, H. Kozuka and S. Sakka, *J. Mater. Res.*, **7**[9], 1, (1992).

Sol-Gel Derived TiO₂ Film Semiconductor Electrode for Photocleavage of Water: Electrode Reaction Mechanism, T. Yoko, A. Yuasa, K. Kamiya and S. Sakka, *Bull. Inst. Chem. Res., Kyoto Univ.*, **69**[4], 311–321, (1991).

Sol-Gel Derived Coating Films and Applications, S. Sakka and T. Yoko, "Chemistry, Spectroscopy and Applications of Sol-Gel Glasses, eds. by R. Reisfeld and C.K. Jørgensen," (*Structure and Bonding*, **77**), 89–118, (1992).

Properties of Oxybromide Tellurite Glasses in the System LiBr-Li₂O-TeO₂, K. Tanaka, T. Yoko, K. Kamiya, H. Yamada and S. Sakka, *J. Non-Crystal. Solids*, **135**, 211–218, (1991).

Na⁺ ⇌ Li⁺ Ion Exchange in Fluoride Glasses, T. Yoko, Y. Kondo, H. Kozuka and S. Sakka, *Mater. Sci. Forum*, **67&68**, 595–600, (1991).

Extended X-ray Absorption Fine Structure (EXAFS) Study on the Local Environment around Copper in Low Thermal Expansion Copper Aluminosilicate Glasses, K. Kamiya, K. Okasaka, M. Wada, H. Nasu and T. Yoko, *J. Am. Ceram. Soc.*, **75**[2], 477–478, (1992).

Structure and Non-Linear Optical Properties of Tellurite-Based Glasses, T. Yoko, *New Glass*, **7**[1], 6–12, (1992), in Japanese.

Sol-Gel Derived CaO- and CeO₂-stabilized ZrO₂ Fibers—Conversion Process of Gel to Oxide and Tensile Strength, K. Kamiya, K. Takahashi, T. Maeda, H. Nasu and T. Yoko, *J. Europ. Ceram. Soc.*, **7**, 295–305, (1991).

Organometallic-Derived Ceramics, S. Sakka and T. Yoko, *Ceram. Int.*, **17**, 217–225, (1991).

Preparation of Lead-Based Perovskite Films by Sol-Gel Method and Their Properties, J. Kang, T. Yoko and S. Sakka, *Jap. J. Appl. Phys.*, **30**[9B], 2182–2185, (1991).

Preparation of Nd-SiO₂ Coating Films by Sol-Gel Method, Hong Guangyan and S. Sakka, "Proceedings of the 2nd International Conference on Rare Earth Development and Application, (Journal of Rare Earth, Special Issue), 681–683, (1991).

Preparation of Nd-Glass Fibers by Sol-Gel Method, Hong Guangyan and S. Sakka, *Chinese J. Appl. Chem.*, **8**(4), 74–76, (1991).

Synthesis of Li₂O·Al₂O₃·2 ~ 6SiO₂ Gels and the Glass-Ceramics from the Sol-Gel Method and the Properties, Joong-Sik Yang, Bong-Gul Kim, Hoon-Seong Cho, Chang-Oh Kweon and S. Sakka, "Proc. Int. Conf. Science and Technology of New Glasses, eds. by S. Sakka and N. Soga," 263–268, (1991).

Sol-Gel Synthesis of Inorganic Materials. Low Temperature Preparation of Shaped Materials, S. Sakka, *Kagaku To Kogyo* (The Chemical Society of Japan), **45**(5), 906–909, (1992), in Japanese.

Sol-Gel Application Technique and Electrochemistry, 1. Fundamentals and Applications of Sol-Gel Method, S. Sakka, *Denki Kagaku*, **60**(9), 754–759, (1992), in Japanese.

Development of Materials by Sol-Gel Method, S. Sakka, *Kinzoku*, **(1)**, 53–57, (1990), in Japanese.

Synthesis of Advanced Materials by Sol-Gel Method, S. Sakka, "The State of the Art and Future Prospect of Sol-Gel Method for the Synthesis of Advanced Materials, Sol-Gel Method Report Kankokai," 1–8, (1992), in Japanese.

Functional Gradient Materials, S. Sakka, "The State of the Art and Future Prospect of Sol-Gel Method for the Synthesis of Advanced materials, Sol-Gel Method Report Kankokai," 139–142, (1992), in Japanese.

Porous Bioceramics, S. Sakka, "Development and Applications of Porous Ceramics II, eds. by M. Hattori and S. Yamanaka," 147–153, (1991), in Japanese.

Glass and Enamel, S. Sakka, "Ceramics Jumping up to the 21 Century, Nippon Seramikusu Kyoukai," 283–286, (1991), in Japanese.

Ceramic Materials, S. Sakka, "Grounding in Advanced Materials, Nippon Zairyou Gakkai," 38–58, (1991), in Japanese.

The Prospect of Inorganic Materials Science, S. Sakka, *Academia*, Science & Technology for the Coming Era (2), 56–60, (1991), in Japanese.

The Bonding Behavior of Calcite to Bone, Y. Fujita, T. Yamamuro, T. Nakamura, S. Kotani, C. Ohtsuki and T. Kokubo, *J. Biomed. Mater. Res.*, **25**, 991, (1991).

Bone Bonding Mechanism of β -Tricalcium Phosphate, S. Kotani, Y. Fujita, T. Kitsugi, T. Nakamura, T. Yamamuro, C. Ohtsuki and T. Kokubo, *J. Biomed. Mater. Res.*, **25**, 1303, (1991).

Apatite Formation on the Surface of Ceravital-type Glass-ceramic in the Body, C. Ohtsuki, H. Kushitani, T. Kokubo, S. Kotani and T. Yamamuro, *J. Biomed. Mater. Res.*,

25, 1363, (1991).

Bioactive Bone Cement Based on $\text{CaO-SiO}_2\text{-P}_2\text{O}_5$ Glass, T. Kokubo, S. Yoshihara, N. Nishimura, T. Yamamuro and T. Nakamura, *J. Am. Ceram. Soc.*, **74**, 1739, (1991).

Surface Modification of Bioactive Glass-ceramic (A-W) by Ion, Implantation, R. Tanaka, K. Sakurai, S.K. Koh, G.H. Takaoka, H. Usui, I. Yamada, S. Akamatsu and T. Kokubo, "Proceedings of 14th Symposium on Ion Sources and Ion-Assisted Technology," 401, (1991).

Bioactive Bone Cement: A Composite of Bioactive Glass Powder-Ammonium-Hydrogen-Phosphate, Y. Taguchi, T. Yamamuro, T. Nakamura, N. Nishimura, T. Kokubo and S. Yoshihara, "Ceramics in Substitutive and Reconstructive Surgery, edited by P. Vincenzini, Elsevier Science Publishers," 85, (1991).

A Bioactive, Ferromagnetic Glass-Ceramic for Hyperthermia, K. Ohura, T. Nakamura, T. Yamamuro, M. Hiraoka, M. Abe, Y. Ebisawa, T. Kokubo, Y. Kotoura and M. Oka, "Ceramics in Substitutive and Reconstructive Surgery, edited by P. Vincenzini, Elsevier Science Publishers," 131, (1991).

Apatite Formation on Ceramics, Metals and Polymers Induced by a CaO , SiO_2 -based Glass in a Simulated Body Fluid, T. Kokubo, K. Hata, T. Nakamura and T. Yamamuro, *Bioceramics*, **4**, 113, (1991).

Differences in Bone-Bonding Mechanism between Surface-Active Ceramics and Resorbable Ceramics: Scanning and Transmission Electron Microscopic Study, M. Neo, S. Kotani, Y. Fujita, T. Nakamura, T. Yamamuro, Y. Bando, M. Yokoyama, C. Ohtsuki and T. Kokubo, *Bioceramics*, **4**, 165, (1991).

Hyperthermic Treatment of Experimental Bone Tumours with a Bioactive Ferromagnetic Glass-Ceramic, M. Ikenaga, K. Ohura, T. Nakamura, Y. Kotoura, T. Yamamuro, M. Oka, Y. Ebisawa and T. Kokubo, *Bioceramics*, **4**, 255, (1991).

A Novel Bioactive Bone Cement based on $\text{CaO-SiO}_2\text{-P}_2\text{O}_5\text{-CaF}_2$ Glass, N. Nishimura, T. Yamamuro, T. Nakamura, Y. Taguchi, T. Kokubo and S. Yoshihara, *Bioceramics*, **4**, 295, (1991).

A Heat-Generating Bioactive Glass-Ceramic for Hyperthermia, K. Ohura, M. Ikenaga, T. Nakamura, T. Yamamuro, Y. Ebisawa, T. Kokubo, Y. Kotoura and M. Oka, *J. Appl. Biomater.*, **2**, 153, (1991).

Synthesis of Apatite Layer by a Biomimetic Process, K. Hata, T. Kokubo, T. Nakamura and T. Yamamuro, *Nippon Kagaku Kaishi*, 1459, (1991), in Japanese.

Bioactivity of CaO , SiO_2 -Based Glasses, C. Ohtsuki, T. Kokubo and T. Yamamuro, "Science and Technology of New Glasses; proceedings of the International Conference on Science and Technology of New Glasses, Zenkyoren Building, Tokyo, Oct. 16-17, 1991," 111, (1991).

Novel Biomedical Materials derived from Glasses, T. Kokubo, "Ceramics: Toward the

21st Century, Centennial International Symposium, edited by Naohiro Soga and Akio Kato, the Ceramic Society of Japan," 500, (1991).

Bone-bonding Mechanism of Sintered β -3CaO·P₂O₅, C. Ohtsuki, T. Kokubo, M. Neo, S. Kotani, T. Yamamuro, T. Nakamura and Y. Bando, *Phosphorus Research Bulletin*, **1**, 191, (1991).

A New Bioactive Bone Cement: Its Histological and Mechanical Characterization, N. Nishimura, T. Yamamuro, Y. Taguchi, M. Ikenaga, T. Nakamura, T. Kokubo and S. Yoshihara, *J. Appl. Biomater.*, **2**, 219, (1991).

Bone-Bonding Ability of CaO·SiO₂ Glasses-in Vitro Experiments, T. Kokubo, Y. Ebisawa, K. Ohura and T. Yamamuro, *Orthopaedic Ceramic Implants*, **8**, 1, (1991), in Japanese.

The Bonding Ability of CaO·SiO₂ Glasses to Bone Tissue, K. Ohura, T. Yamamuro, T. Nakamura, T. Kokubo, Y. Ebisawa, M. Oka and Y. Kotoura, *Orthopaedic Ceramic Implants*, **8**, 9, (1991), in Japanese.

Bonding Mechanism of Ceravital-type Glass-ceramic to Living Bone in vitro Experiment; C. Ohtsuki, H. Kushitani, T. Kokubo, S. Kotani and T. Yamamuro, *Orthopaedic Ceramic Implants*, **8**, 15, (1991), in Japanese.

The Bonding Behavior of Ceravital (KGS), S. Kotani, T. Yamamuro, T. Nakamura, K. Ono, T. Kitsugi, Y. Fujita, K. Kawanabe, T. Kokubo, H. Kushitani and C. Ohtsuki, *Orthopaedic Ceramic Implants*, **8**, 21, (1991), in Japanese.

Strength Profile of the Bone where A-W. GC Granule-fibrin Composite has been Implanted: Comparison with Porous Hydroxyapatite, K. Ono, T. Yamamuro, T. Nakamura, S. Kotani, S. Tsutsumi and T. Kokubo, *Orthopaedic Ceramic Implants*, **8**, 39, (1991), in Japanese.

Mechanical Properties of the Bone where A-W. GC-fibrin Composite has been Implanted: Comparison with Porous Hydroxyapatite, K. Ono, T. Yamamuro, T. Nakamura, H. Kotani, K. Ikeuchi and T. Kokubo, *Orthopaedic Ceramic Implants*, **8**, 43, (1991), in Japanese.

Heating of Bioactive, Ferrimagnetic Glass-Ceramic for Hyperthermia, Y. Ebisawa, Y. Sugimoto, T. Kokubo, K. Ohura, T. Yamamuro, M. Hiraoka and M. Abe, *Orthopaedic Ceramic Implants*, **9**, 111, (1991), in Japanese.

In vivo Surface Structural Change of Bioactive Glass-Ceramic A-W, T. Kokubo, C. Ohtsuki, Y. Aoki, S. Kotani, T. Kitsugi and T. Yamamuro, *Orthopaedic Ceramic Implants*, **9**, 117, (1991), in Japanese.

Development of a Bioactive Glass-Ceramic for Hyperthermia, K. Ohura, T. Nakamura, T. Yamamuro, T. Kokubo, Y. Ebisawa, Y. Kotoura, M. Oka, M. Hiraoka and M. Abe, *Orthopaedic Ceramic Implants*, **9**, 123, (1991), in Japanese.

The Bonding Behavior of β -TCP to Bone, S. Kotani, T. Yamamuro, T. Nakamura, T.

Kitsugi, Y. Fujita, K. Kawanabe, K. Takatsuka, T. Kokubo and C. Ohtsuki, *Orthopaedic Ceramic Implants*, **9**, 147, (1991), in Japanese.

Bonding Behavior of Zirconia Ceramics Coated with Apatite Layer in Simulated Body Fluid, Y. Fujita, K. Takatsuka, T. Yamamuro, T. Kokubo, T. Nakamura, Y. Abe, T. Kitsugi, Y. Aoki and S. Kotani, *Orthopaedic Ceramic Implants*, **9**, 167, (1991), in Japanese.

Apatite Layer Coated on Various Substrates in Simulated Body Fluid, Y. Abe, C. Ohtsuki, Y. Aoki, T. Kokubo, Y. Fujita, K. Takatsuka, S. Kotani and T. Yamamuro, *Orthopaedic Ceramic Implants*, **9**, 179, (1991), in Japanese.

Chemical Reaction of Bioactive Glass and Glass-ceramics with a Simulated Body Fluid, T. Kokubo, H. Kushitani, C. Ohtsuki, S. Sakka and T. Yamamuro, *J. Mater. Sci: Mater. Med.*, **3**, 79, (1992).

Bioactivity of CaO-SiO_2 Glasses added with Various Ions, K. Ohura, T. Nakamura, T. Yamamuro, Y. Ebisawa, T. Kokubo, Y. Kotoura and M. Oka, *J. Mater. Sci: Mater. Med.*, **3**, 95, (1992).

Compositional Dependence of Bioactivity of Glasses in the System $\text{CaO-SiO}_2\text{-Al}_2\text{O}_3$: Its *in vitro* Evaluation, C. Ohtsuki, T. Kokubo and T. Yamamuro, *J. Mater. Sci: Mater. Med.*, **3**, 119, (1992).

Difference in Ceramic-bone Interface between Surface-active Ceramics and Resorbable Ceramics: a Study by Scanning and Transmission Electron Microscopy, M. Neo, S. Kotani, Y. Fujita, T. Nakamura, T. Yamamuro, Y. Bando, C. Ohtsuki and T. Kokubo, *J. Biomed. Mater. Res.*, **26**, 255, (1992).

Preparation of Bioactive and Ferromagnetic Glass-Ceramic for Hyperthermia, T. Kokubo, Y. Ebisawa, Y. Sugimoto, M. Kiyama, K. Ohura, T. Yamamuro, M. Hiraoka and M. Abe, *Bioceramics*, **3**, 213, (1992).

A Bioactive Glass-Ceramic for Treatment of Bone Tumors, K. Ohura, M. Ikenaga, T. Nakamura, T. Yamamuro, Y. Ebisawa, T. Kokubo, Y. Kotoura and M. Oka, *Bioceramics*, **3**, 225, (1992).

Preparation of Bioactive Bone Cement from $\text{CaO-SiO}_2\text{-P}_2\text{O}_5$ Glass, S. Yoshihara, E. Takahata, T. Kokubo, N. Nishimura, Y. Taguchi and T. Yamamuro, *Bioceramics*, **3**, 231, (1992).

Surface Modification of Bio-active Ceramic (Artificial Bone) by Ion Implantation, G.H. Takaoka, R. Tanaka, H. Usui, S.K. Koh, M.I. Current, I. Yamada, S. Akamatsu and T. Kokubo, "Tissue-Inducing Biomaterials; Symposium held Dec. 4-6, 1991, Boston, Massachusetts, U.S.A., edited by Linda G. Cima and Eyal S. Ron. (Materials Research Society Symposium Proceedings, V.252)," **23**, (1992).

Recent Progress in Glass-Based Materials for Biomedical Applications, T. Kokubo, *J. Ceram. Soc. Jpn.*, **99**, 965, (1991).

Ceramics for Artificial Bones and Teeth, T. Kokubo, *Kagaku to Kyoiku*, **39**, 387,

(1991), in Japanese.

Cements Able to Bond to Living Bone, T. Kokubo, "Seramikku De-ta Bukku '91," 395, (1991), in Japanese.

Ceramics Compatible to Bone, T. Kokubo, *Nippon Kesshou Seicho Gakkaishi*, **18**, 84, (1991), in Japanese.

Bioactive Ceramics able to Solidity at Normal Temperature, T. Kokubo, *Kagaku to Kogyo*, **44**, 1922, (1991), in Japanese.

Bioactive Materials Derived from Glass, T. Kokubo and C. Ohtsuki, *Kinzoku*, **12**, 29, (1991), in Japanese.

Dielectric Properties of FeTiO_3 , K. Iwauchi, M. Kiyama and T. Nakamura, *Phys. Stat. Sol.*, **127**, 567, (1991).

The Growth of $\alpha\text{-Fe}_2\text{O}_3$ Particles by Transformation at 200°C of Iron(III) Hydroxide in the Alkaline Media Containing Slight Amounts of Other Metal Ions, M. Kiyama, T. Kurata, T. Nakamura and T. Takada, *Bull. Inst. Chem. Res., Kyoto Univ.*, **68**, 275, (1991).

The Formation of $\text{SrFe}_{12}\text{O}_{19}$ from Aqueous Suspensions and Its Properties, M. Kiyama, N. Nagai, M. Maekawa and T. Takada, *Bull. Inst. Chem. Res., Kyoto Univ.*, **68**, 269, (1991).

Effect of Some Additive Oxides on Preparation of $\text{Bi}_{1.8}\text{Pb}_{0.4}\text{Sr}_{2.0}\text{Cu}_{3.2}\text{O}_y$ Superconductor Ceramics, J. Takada, H. Kitaguchi, S. Yada, K. Ohhashi, S. Naka, Y. Tomii, H. Itoh and M. Takano, *Funtai oyobi Funmatsu Yakin*, **38**, 287, (1991), in Japanese.

Mössbauer Study on the Magnetic Properties of a Single Crystal $\text{Bi}_3\text{Fe}_5\text{O}_{12}$ Film, T. Fujii, M. Takano, Y. Bando and T. Okuda, *Funtai oyobi Funmatsu Yakin*, **38**, 427, (1991), in Japanese.

The Subsolidus Phase Diagram of the $\text{LaO}_{1.5}\text{-BaO-CuO}$ System at 1000°C in Air, Y. Ikeda, T.M. Kyaw, Z. Hiroi, M. Takano and Y. Bando, *Funtai oyobi Funmatsu Yakin*, **38**, 1009, (1991), in Japanese.

Phase Diagram for the System $\text{PrO}_{1.83}\text{-CaO-CuO}$, Y. Kawamura, N. Machida, T. Shigematsu, N. Nakanishi, Y. Ikeda, Z. Hiroi, M. Takano, Y. Bando, Y. Takeda and O. Yamamoto, *Funtai oyobi Funmatsu Yakin*, **38**, 1013, (1991), in Japanese.

Superconductivity of YBCO Ultrathin Films, K. Shimura, T. Terashima, Y. Bando, Y. Matsuda and S. Komiyama, *Funtai oyobi Funmatsu Yakin*, **38**, 1019, (1991), in Japanese.

Cross-sectional TEM Study of Oxide Superconducting Thin Films, T. Satoh, Z. Hiroi, T. Terashima, K. Shimura and Y. Bando, *Funtai oyobi Funmatsu Yakin*, **38**, 1023, (1991), in Japanese.

Synthesis and Superconductivity of $\text{La}_{2-x}\text{Bi}_x\text{CuO}_4$, Y. Takeda, A. Sato, N. Imanishi, O. Yamamoto, Z. Hiroi, M. Takano and Y. Bando, *Funtai oyobi Funmatsu Yakin*, **38**, 1001, (1991), in Japanese.

Effect of Ba-addition to the High- T_c Phase in the Bi-Pb-Sr-Ca-Cu-O System, M. Fujiwara, T. Nanba, J. Takada, Z. Hiroi, Y. Ikeda and M. Takano, *Funtai oyobi Funmatsu Yakin*, **38**, 1039, (1991), in Japanese.

Effect of Additive Alkaline Earth Metal Oxides on Critical Current Density of Superconductors in the Bi(Pb)-Sr-Ca-Cu-O System, S. Yada, Y. Ikeda, J. Takada, H. Itoh, R. Yamamoto, M. Takano and S. Naka, *Funtai oyobi Funmatsu Yakin*, **38**, 1048, (1991), in Japanese.

Unit Cell-by-Unit Cell Grown $(YBa_2Cu_3O_{7-\delta})_1/(PrBa_2Cu_3O_{7-\delta})_1$ Superlattice, K. Kamigaki, T. Terashima, K. Shimura, Y. Bando and H. Terauchi, *Physica C*, **183**, 252, (1991).

RHEED Study of Crystal Growth of High Temperature Superconducting Oxides in Reactive Coevaporation, Y. Bando, T. Terashima, K. Shimura, T. Sato, Y. Matsuda, S. Komiyama, K. Kamigaki and H. Terauchi, *Physica C*, **180**, 3, (1991).

Anisotropy of Transport Critical Currents and Intrinsic Pinning Properties in $YBa_2Cu_3O_{7-\delta}$ Single-Crystal Thin Films, T. Nishizaki, T. Aomine, I. Fujii, K. Yamamoto, S. Yoshii, T. Terashima and Y. Bando, *Physica C*, **185-189**, 2259, (1991).

Ultrathin Films and Superlattices of High T_c Superconductors Controlled in the Unit-Cell Scale Using RHEED Oscillations, Y. Bando, T. Terashima, K. Shimura, T. Sato, Y. Matsuda, S. Komiyama, K. Kamigaki and H. Terauchi, *Physica C*, **185-189**, 204, (1991).

Intrinsic Pinning and Dissipation at High Current Density in Epitaxial Thin Films of $YBa_2Cu_2O_{7-y}$, Y. Iye, T. Terashima and Y. Bando, *Physica C*, **184**, 362, (1991).

Transport Critical Currents and Flux Pinning Mechanisms in Single-Crystalline Thin Films of $YBa_2Cu_3O_{7-\delta}$, T. Nishizaki, T. Aomine, I. Fujii, K. Yamamoto, S. Yoshii, T. Terashima and Y. Bando, *Physica C*, **181**, 223, (1991).

Anisotropy and Dissipation in the Mixed State of High Temperature Superconductors, Y. Iye, A. Fukushima, T. Tamegai, T. Terashima and Y. Bando, *Physica C*, **185-189**, 297, (1991).

A New Superconducting Cupric Oxide Found in the Sr-Cu-O System, Z. Hiroi, M. Takano, M. Azuma, Y. Takeda and Y. Bando, *Physica C*, **185-189**, 523, (1991).

Superconductivity of $La_{2-x}A_xCuO_{4+\delta}$ ($A = Nd$ and Bi) prepared under High Oxygen Pressure, Y. Takeda, A. Sato, K. Yoshikawa, N. Imanishi, O. Yamamoto, M. Takano, Z. Hiroi and Y. Bando, *Physica C*, **185-189**, 603, (1991).

Low Temperature Magnetoresistance in $Gd_{1-x}Pr_xBa_2Cu_3O_y$, Y. Ochiai, T. Tamura, Y. Narahara, F. Nakamura, T. Terashima, K. Shimura and Y. Bando, *Physica C*, **185-189**, 1131, (1991).

Cross-Sectional Transmission Electron Microscopy (TEM) Observation of Ultrathin $YBa_2Cu_3O_7$ Films and $YBa_2Cu_3O_7/PrBa_2Cu_3O_7$ Superlattices, T. Satoh, T. Terashima, K. Shimura, Z. Hiroi and Y. Bando, *Physica C*, **185-189**, 2033, (1991).

Transport Properties of Ultrathin YBCO Films and YBCO/PrBCO Superlattices, Y. Matsuda, A. Fujiyama, S. Komiyama, T. Terashima, K. Shimura and Y. Bando, *Physica C*, **185-189**, 2055, (1991).

Phase Diagram Studies of the $\text{BiO}_{1.5}\text{-PbO-SrO-CaO-CuO}$ System and the Formation Process of the "2223 (high- T_c)" Phase, Y. Ikeda, H. Ito, S. Shimomura, Z. Hiroi, M. Takano, Y. Bando, J. Takada, K. Oda, H. Kitaguchi, Y. Miura, Y. Takeda and T. Takada, *Physica C*, **190**, 18, (1991).

Ba Addition to the High- T_c Phase in the Bi-Pb-Sr-Ca-Cu-O System, J. Takada, M. Fujiwara, T. Nanba, T. Egi, Y. Ikeda, Z. Hiroi, M. Takano and H. Mazaki, *Physica C*, **190**, 102, (1991).

Charge Transfer and Superconductivity in $\text{Nd}(\text{Ba}_{1-x}\text{Nd}_x)_2\text{Cu}_3\text{O}_{7+x}$ Prepared in High Pressure Oxygen, K. Takita, H. Akinaga, T. Ohshima, Y. Takeda and M. Takano, *Physica C*, **191**, 509, (1991).

Anomalous Misfit Strain Relaxation in Ultrathin $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$ Epitaxial Films, K. Kamigaki, H. Terauchi, T. Terashima, Y. Bando, K. Iijima, K. Yamamoto, K. Hirata, K. Hayashi, I. Nakagawa and Y. Tomii, *J. Appl. Phys.*, **69**, 3653, (1991).

Electronic and Spin State of High-Valent Iron Oxides Studied by a DV- $X\alpha$ Cluster Method, H. Adachi and M. Takano, *J. Solid State Chem.*, **93**, 556, (1991).

A New Homologous Series $\text{Sr}_{n-1}\text{Cu}_{n+1}\text{O}_{2n}$ Found in the SrO-CuO System Treated under High Pressure, Z. Hiroi, M. Azuma, M. Takano and M. Takano, *J. Solid State Chem.*, **95**, 230, (1991).

Application of High Pressure and High Oxygen Pressure to Copper Oxides, M. Takano, Z. Hiroi, M. Azuma and Y. Takeda, *JJAP Series 7: Mechanisms of Superconductivity*, **3**, (1991).

Recent Transport Studies of High Temperature Superconductors at ISSP, Y. Iye, C. Murayama, N. Mori, T. Enomoto, A. Fukushima, T. Tamegai, T. Matsumoto, Y. Yamada, Y. Kubo, Y. Shimakawa, T. Manako, T. Terashima and Y. Bando, *JJAP Series 7: Mechanisms of Superconductivity*, 236, (1991).

Rheed Oscillations During Growth of High- T_c Superconducting Oxides, T. Terashima, K. Shimura, Y. Bando, K. Iijima, K. Yamamoto, K. Hirata, K. Hayashi, K. Kamigaki and H. Terauchi, "Adv. in Superconductivity III; Proc. 3rd Int. Symp. Superconductivity (ISS '90), Nov. 6-9, 1990, Sendai. Eds. K. Kajimura and H. Hayakawa, Springer-Verlag," 851, (1991).

Superconductivity of One-Unit-Cell Thick $\text{YBa}_2\text{Cu}_3\text{O}_7$ Thin Film, T. Terashima, K. Shimura, Y. Bando, Y. Matsuda, A. Fujiyama and S. Komiyama, *Phys. Rev. Lett.*, **67**, 1362, (1991).

Pressure-Induced High-Spin to Low-Spin Transition in CaFeO_3 , M. Takano, S. Nasu, T. Abe, K. Yamamoto, S. Endo, Y. Takeda and J.B. Goodenough, *Phys. Rev. Lett.*, **67**,

3267, (1991).

Growth Mechanism and Superconducting Properties of Ultrathin $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$ Films, T. Terashima, K. Shimura, T. Satoh, Y. Bando, Y. Matsuda, A. Fujiyama, S. Komiyama, K. Kamigaki and H. Terauchi, *J. Cryst. Growth*, **115**, 745, (1991).

Low Frequency Noise from $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$ Thin Films, T. Kawahara, A. Hirai, T. Terashima and Y. Bando, "Inter. Conf. of Noise 1/f '91, Nov., 1991, Kyoto," **1**, (1991).

Conversion Electron Mössbauer Spectroscopy of Epitaxial Iron Oxide Films, M. Takano, T. Fujii, Y. Bando, Y. Isozumi, R. Katano and T. Okuda, *Mat. Res. Soc. Symp. Proc.*, **232**, 319, (1991).

Structure and Properties of Ultrathin Film and Superlattice of YBCO Grown Using RHEED Oscillation Monitoring, Y. Bando, "3rd FED Workshop on High-Temperature Superconducting Electron Devices (FED HfTcSc -ED Workshop), May 15-17, 1991, Kumamoto," **202**, (1991).

Magnetic Properties of $\text{Ba}_{1-x}\text{Sr}_x\text{Ti}_{2-y}\text{Sn}_y\text{Fe}_4\text{O}_{11}$, K. Iwachi and Y. Ikeda, *J. Mag. Mag. Mater.*, **96**, 261, (1991).

^{57}Fe Mössbauer Study of SrFeO_3 under Ultra-High Pressure, S. Nasu, T. Abe, K. Yamamoto, S. Endo, M. Takano and Y. Takeda, *Hyp. Int.*, **67**, 529, (1991).

Mössbauer Spectroscopic Study of Surface and Interface Properties of Epitaxial Fe_3O_4 Films, T. Fujii, J. Takada, Y. Miura, M. Takano and Y. Bando, *Funtai oyobi Funmatsu Yakin*, **39**, 143, (1992), in Japanese.

Superconductivity in the A-Cu-O System (A: alkaline-earth), M. Azuma, Z. Hiroi, M. Takano, Y. Bando, Y. Takeda, O. Yamamoto, O. Ohtaka, S. Kume and T. Yamanaka, *Funtai oyobi Funmatsu Yakin*, **39**, 337, (1992), in Japanese.

Ca-Substitution Effects in $\text{Bi}_{2+x}\text{Sr}_{2-x}\text{Cu}_{1+x/4}\text{O}_z$ Solid Solution, Y. Sano, Y. Ikeda, T.M. Kyaw, Z. Hiroi, M. Takano and Y. Bando, *Funtai oyobi Funmatsu Yakin*, **39**, 362, (1992), in Japanese.

Effects of Re-press Forming on Densification and Critical Current Density of Superconductors in the Bi(Pb)-Sr-Ca-Cu-O System, S. Yada, H. Kitaguchi, R. Yamamoto, Y. Nitta, H. Itoh, J. Takada, Y. Ikeda, M. Takano and S. Naka, *Funtai oyobi Funmatsu Yakin*, **39**, 378, (1992), in Japanese.

Effect of Li Addition to the High- T_c Phase in the Bi-Pb-Sr-Ca-Cu-O System (I), T. Ohara, K. Endo, T. Egi, T. Nanba, J. Takada, Y. Ikeda, M. Takano, Y. Bando and H. Mazaki, *Funtai oyobi Funmatsu Yakin*, **39**, 382, (1992), in Japanese.

Effect of Li Addition to the High- T_c Phase in the Bi-Pb-Sr-Ca-Cu-O System (II), J. Takada, M. Fujiwara, T. Egi, T. Nanba, Y. Ikeda, M. Takano and H. Mazaki, *Funtai oyobi Funmatsu Yakin*, **39**, 386, (1992), in Japanese.

Ultrathin Films and Superlattices of High Temperature Superconducting Oxides, T.

Terashima, K. Shimura, Y. Bando, Y. Matsuda, A. Fujiyama and S. Komiyama, *Springer Proceedings in Physics*, **60**, 25, (1992).

The Resistive Transition in Ultra-Thin $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$ Films in a Magnetic Field, A. Fujiyama, Y. Matsuda, S. Komiyama, T. Terashima, K. Shimura and Y. Bando, *Springer Proceedings in Physics*, **60**, 547, (1992).

Superconducting Fluctuation in Hall and Diagonal Conductivities in $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$, Y. Matsuda, A. Fujiyama, S. Komiyama, S. Hikami, A.G. Arnov, T. Terashima and Y. Bando, *Springer Proceedings in Physics*, **60**, 529, (1992).

Misfit Strain Relaxation in Lattice-Mismatched $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}/\text{MgO}$ Heterostructures, K. Kamigaki, T. Terashima, Y. Bando and H. Terauchi, *Springer Proceedings in Physics*, **60**, 69, (1992).

Magnetic and Electric Properties of $\text{GdBa}_2\text{Cu}_3\text{O}_y$, Y. Ochiai, F. Nakamura, T. Tamura, K. Senoh, T. Terashima, K. Iijima, K. Yamamoto, K. Hirata, Y. Bando and Y. Narahara, *Springer Proceedings in Physics*, **60**, 381, (1992).

Flux Dynamics and Dissipation in Highly Anisotropic Layered Superconductors, Y. Iye, T. Tamegai, S. Nakamura, T. Terashima and Y. Bando, *Springer Proceedings in Physics*, **60**, 537, (1992).

Harmonic Susceptibilities of Single-Crystal $\text{YBa}_2\text{Cu}_3\text{O}_y$ Thin Films, K. Yamamoto, H. Mazaki, H. Yasuoka, T. Terashima and Y. Bando, *Physica C*, **192**, 47, (1992).

Structural, Electrical and Magnetic Studies of Infinite-Layered $\text{Sr}_{1-x}\text{La}_x\text{CuO}_2$ Superconductor, G. Er, S. Kikkawa, F. Kanamaru, Y. Miyamoto, S. Tanaka, M. Sera, M. Sato, Z. Hiroi, M. Takano and Y. Bando, *Physica C*, **196**, 271, (1992).

Superconducting Fluctuation in the Hall Conductivity: An Estimation of Skew-Scattering Lifetime in $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$, Y. Matsuda, A. Fujiyama, S. Komiyama, S. Hikami, A.G. Aronov, T. Terashima and Y. Bando, *Phys. Rev. B*, **45**, 4901, (1992).

Electronic Structure of $\text{SrFe}^{4+}\text{O}_3$ and Fe Perovskite Oxides, A.E. Bocquet, A. Fujimori, T. Mizokawa, T. Saitoh, H. Namatame, S. Suga, N. Kimizuka, Y. Takeda and M. Takano, *Phys. Rev. B*, **45**, 1561, (1992).

Resistive Transition of $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$ Ultrathin Films Down to One Unit Cell Thickness in Magnetic Fields, Y. Matsuda, A. Fujiyama, S. Komiyama, T. Terashima, K. Shimura and Y. Bando, "Adv. in Superconductivity IV: Proc. 4th Int. Symp. Superconductivity (ISS '91), Oct. 14–17, 1991, Tokyo. Eds. H. Hayakawa and N. Koshizuka, Springer-Verlag," 833, (1992).

Harmonic Susceptibilities of a Single-Crystal $\text{YBa}_2\text{Cu}_3\text{O}_y$ Bulk Superconductor, K. Yamamoto, H. Mazaki, H. Yasuoka, T. Terashima and Y. Bando, *Jpn. J. Appl. Phys.*, **31**, 770, (1992).

Growth and Superconductivity of Single One Unit-Cell $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$ Layer, Y. Bando, T. Terashima, K. Shimura, T. Sato, Y. Matsuda, S. Komiyama, K. Kamigaki and

H. Terauchi, "Superconductivity and its Applications: Buffalo, N.Y., 1991, edited by Y.H. Kao and others. (AIP Conference Proceedings, No. 251)," 20, (1992).

Superconductivity at 110 K in the Infinite-Layer Compound $(\text{Sr}_{1-x}\text{Ca}_x)_{1-y}\text{CuO}_2$, M. Azuma, Z. Hiroi, M. Takano, Y. Bando and Y. Takeda, *Nature*, **356**, 775, (1992).

Dielectric Properties of Monoclinic Hollandite $\text{Ba}_x\text{Ti}_{4-2x}\text{Fe}_{2x}\text{O}_8$ ($x = 0.67$), K. Iwachi and Y. Ikeda, *Phys. Stat. Sol.*, **130**, 449, (1992).

Crystal Chemistry and Transport Properties of $\text{Nd}_{2-x}\text{A}_x\text{NiO}_4$ ($\text{A} = \text{Ca}, \text{Sr}, \text{or Ba}, 0 \leq x \leq 1.4$), Y. Takeda, M. Nishijima, N. Imanishi, R. Kanno, O. Yamamoto and M. Takano, *J. Sol. Stat. Chem.*, **96**, 72, (1992).

Mössbauer Study of CaFeO_3 under External High-Pressure, S. Nasu, T. Abe, K. Yamamoto, S. Endo, M. Takano and Y. Takeda, *Hyp. Int.*, **70**, 1063, (1992).

New Cupric Oxide Superconductors Prepared under High Pressure, M. Takano, "Electronic Properties and Mechanisms of High T_c Superconductors, eds. by T. Oguchi, K. Kadowaki and T. Sasaki, Elsevier Science Publishers," 89, (1992).

Progress of Artificial Superlattice in Ceramics, Y. Bando, *Seramikkusu*, **26**, 1117, (1991), in Japanese.

Fabrication and Properties High- T_c Superconductivity Oxides, Y. Bando and T. Terashima, *Erekutoronikku Seramikkusu*, **9**, 13, (1991), in Japanese.

Artificial Superlattice of Oxides—High T_c Superconductor and Magnetic Oxide—, Y. Bando, "Oyo Jiki Semina, Dec. 2–3, 1991, Tokyo, Oyo Jiki Gakkai," 53, (1991), in Japanese.

Search of New Oxide Superconductors: High Pressure Synthesis, M. Takano, *Funtai oyobi Funmatsu Yakin*, **38**, 987, (1991), in Japanese.

A New Oxide Superconductor with a T_c far above 130 K, M. Takano, *Nyu Seramikkusu*, **8**, 39, (1991), in Japanese.

Crystal Growth of High- T_c Superconductivity Thin Films Using Reactive Coevaporation, Y. Bando, *Cho Seimitsu*, **1**, 106, (1991), in Japanese.

Application of High Pressure and High Oxygen Pressure to Cu-Oxides, M. Takano, Z. Hiroi, M. Azuma and Y. Takeda, "Chemistry of High Temperature Superconductors, ed. by C.N.R. Rao, World Scientific, Singapore," 243, (1991).

Search for New Superconducting Cupric Oxides: High Pressure Synthesis, M. Takano, Z. Hiroi, M. Azuma and Y. Takeda, *Kotai Butsuri*, **27**, 251, (1992), in Japanese.

Application of High Pressure and High Oxygen Pressure to Copper Oxides, M. Takano, Z. Hiroi, M. Azuma and Y. Takeda, *JJAP Series 7: Mechanisms of Superconductivity*, **3**, (1992).

Superconducting Alkaline Earth-Cupric Oxide prepared under High Pressure, M.

Takano, *Oyo Butsuri*, **61**, 503, (1992), in Japanese.

Amorphous-to-Crystalline Transformation of Ultrathin Fe Layers: ^{57}Fe Mössbauer Study of Artificial Multilayers, T. Shinjo, *Struct. Chem.*, **2**, 281, (1991).

^{57}Fe and ^{57}Co Mössbauer Studies of High T_c Y-Ba-Cu Oxides, S. Nasu, M. Yoshida, Y. Oda, T. Kohara, T. Shinjo, K. Asayama, F.E. Fujita, S. Katsuyama, Y. Ueda and K. Kosuge, *Hyper. Inter.*, **66**, 417, (1991).

Resistivity vs. Magnetic Structure in Multilayers, T. Shinjo, H. Yamamoto, T. Okuyama, S. Araki, K. Mibu and N. Hosoiito, *Hyper. Inter.*, **68**, 333, (1991).

Magnetization Process of Fe Layers in Fe/Nd Multilayered Films Investigated by ^{57}Fe Mössbauer Spectroscopy, N. Hosoiito, K. Mibu, T. Shinjo and W. Keune, *Hyper. Inter.*, **68**, 337, (1991).

Interface Magnetism of Fe/Nd Multilayers Studied by Mössbauer Spectroscopy, K. Mibu, N. Hosoiito and T. Shinjo, *Hyper. Inter.*, **68**, 341, (1991).

^{57}Fe Mössbauer Study of Fe/Bi Multilayers, L. Wu, N. Nakayama, N. Hosoiito and T. Shinjo, *Hyper. Inter.*, **69**, 509, (1991).

Analysis of Magnetization Process in Fe/GdFe Multilayers, H. Dohnomae, T. Shinjo and M. Motokawa, *J. Magn. Magn. Mater.*, **93**, 477, (1991).

Mössbauer Investigation of the Magnetic Properties of Amorphous Fe/Zr-interface Layers Formed by Solid State Reaction, W. Kiauka, W. Keune, T. Shinjo and N. Hosoiito, *J. Magn. Magn. Mater.*, **93**, 494, (1991).

Magnetic Properties of Fe/Tb Multilayered Films Studied by Mössbauer Spectroscopy, B. Scholz, R.A. Brand, W. Keune, U. Kirschbaum, E.F. Wassermann, K. Mibu and T. Shinjo, *J. Magn. Magn. Mater.*, **93**, 499, (1991).

Magnetic Properties and Magnetoresistance of Multilayers with Two Different Magnetic Layers, H. Yamamoto, T. Okuyama, H. Dohnomae and T. Shinjo, *Nippon Oyo Ziki Gakkaishi*, **15**, 431, (1991), in Japanese.

Magnetoresistance of Multilayers, H. Yamamoto and T. Shinjo, *Nippon Oyo Ziki Gakkaishi*, **15**, 813, (1991), in Japanese.

Magnetoresistance of Multilayers with Two Magnetic Components, H. Yamamoto, T. Okuyama, H. Dohnomae and T. Shinjo, *J. Magn. Magn. Mater.*, **99**, 243, (1991).

Magnetic Field Effects on Thermopower of Fe/Cr and Cu/Co/Cu/Ni(Fe) Multilayers, J. Sakurai, M. Horie, S. Araki, H. Yamamoto and T. Shinjo, *J. Phys. Soc. Jpn.*, **60**, 2522, (1991).

Crystallographic and Magnetic Properties of Fe/Au(001) and Fe/Au(111) Superlattice Films, T. Okuyama, *Jap. J. Appl. Phys.*, **30**, 2053, (1991).

Giant Magnetoresistance of Metallic Multilayers, T. Shinjo, *Zairyo Kagaku*, **28**, 298,

(1991), in Japanese.

Supermodulus Effect in a Au/Ni Superlattice Studied by a Diamond Anvil Cell and SR X Ray, H. Konishi, Y. Fujii, N. Hamaya, H. Kawada, Y. Ohishi, N. Nakayama, L. Wu, H. Dohnomae, T. Shinjo and T. Matsushita, *Rev. Sci. Instrum.*, **63**, 1035, (1992).

High-Pressure X-Ray Diffraction Studies of Elastic Anomalies in Superlattice, Y. Fujii, Y. Ohishi, H. Konishi, N. Nakayama and T. Shinjo, *Mat. Res. Soc. Symp. Proc.*, **231**, 355, (1992).

Magnetism and Magnetoresistance of Multilayers with Two Magnetic Components. I. Cu-Based Films, H. Yamamoto, T. Okuyama, H. Dohnomae and T. Shinjo, *Mat. Res. Soc. Symp. Proc.*, **231**, 217, (1992).

Magnetism and Magnetoresistance of Multilayers with Two Magnetic Components. II. Au-Based Films, T. Okuyama, H. Dohnomae, H. Yamamoto and T. Shinjo, *Mat. Res. Soc. Symp. Proc.*, **231**, 223, (1992).

Magneto-Transport Phenomena of Multilayered Films with Two Magnetic Components, T. Okuyama, H. Yamamoto and T. Shinjo, *J. Magn. Magn. Mater.*, **113**, 79, (1992).

Magnetic Properties of Interfaces and Magnetoresistance in Multilayers, T. Shinjo, *Springer Series in Materials Science*, **17**, 305, (1992).

⁵⁷Fe and ¹¹⁹Sn Mössbauer Study of Tl-Containing High T_c Superconductors, E. Kuzmann, S. Nasu, T. Shinjo and I. Halasz, *Hyper. Inter.*, **70**, 1143, (1992).

¹⁹⁷Au Mössbauer Study of Au/Ni Artificial Multilayers, S. Nasu, T. Shibatani, Y. Maeda, M. Seto, H. Dohnomae, N. Mima and T. Shinjo, *Hyper. Inter.*, **71**, 1359, (1992).

Preparation and Magneto-Optical Properties of MnSb/PtSb Multilayers, T. Anno and T. Shinjo, *Nippon Oyo Ziki Gakkaishi*, **16**, 333, (1992), in Japanese.

Magnetic Properties of Fe/Co Multilayered Films, T. Okuyama and T. Shinjo, *J. Phys. Soc. Jpn.*, **61**, 286, (1992).

Polarized Neutron Diffraction Studies of Fe/Cr Multilayered Films with Giant Magnetoresistance Effect, N. Hosoi, K. Mibu, S. Araki, T. Shinjo, S. Itoh and Y. Endoh, *J. Phys. Soc. Jpn.*, **61**, 300, (1992).

Spin Reorientation in Fe/Nd Multilayered Films from Neutron Diffraction Experiments, N. Hosoi, K. Mibu, T. Shinjo and Y. Endoh, *J. Phys. Soc. Jpn.*, **61**, 2477, (1992).

Organic Chemistry

A Novel Coenzyme NAD(P)⁺-NAD(P)H Model with Axial Chirality. Its Preparation and Stereoselectivity, M. Fujii, T. Kamata, M. Okamura and A. Ohno, *J. Chem. Soc., Chem. Commun.*, 905, (1992).

Studies on the Reaction Mechanism of the Photochemical Desulfonylation from β -Keto Sulfone by a Coenzyme NADH Model, M. Fujii, K. Nakamura and A. Ohno, *Chemistry*

Express, **7**, 377, (1992).

Dediazoniation of Arenediazonium Salt with Trivalent Phosphorus Compounds by One-Electron Transfer Mechanism, S. Yasui, M. Fujii, C. Kawano, Y. Nishimura and A. Ohno, *Tetrahedron Lett.*, **32**, 5601, (1991).

Solvent Effects on the Solvolysis of Neophyl Tosylates, M. Fujio, M. Goto, K. Funatsu, T. Yoshino, Y. Saeki, K. Yatsugi and Y. Tsuno, *Bull. Chem. Soc. Jpn.*, **65**, 46, (1992).

Asymmetric Reduction of Butyl Pyruvate Catalyzed by Immobilized Glycerol Dehydrogenase in Organic-Aqueous Biphasic Media, K. Nakamura, S. Takano, K. Terada and A. Ohno, *Chemistry Lett.*, 951, (1992).

Asymmetric Reduction of Kethyl Ketons Having a 1,3-Dithiolane or 1,3-Dithian Moiety by Bakers' Yeast, Y. Inoue, S. Tanimoto, K. Nakamura and A. Ohno, *Bull. Inst. Chem. Res., Kyoto Univ.*, **69**, 520, (1992).

Effect of Solvent Structure on Enantioselectivity of Lipase-Catalyzed Transesterification, K. Nakamura, Y. Takebe, T. Kitayama and A. Ohno, *Tetrahedron Lett.*, **32**, 4941, (1991).

Reduction by Bakers' Yeast in Benzene, K. Nakamura, S. Kondo, Y. Kawai and A. Ohno, *Tetrahedron Lett.*, **32**, 7075 (1991).

Stereospecific Electrochemical Oxidation of NAD(P)H Analogs Mediated by Radical Cation of Anilines, M. Okamura, T. Kashiwagi, Y. Mikata, N. Yamazaki and A. Ohno, *Chemistry Lett.*, 1247, (1992).

Photochemical Hydroformylation of Olefins in the Cobalt-Phosphine Catalyst System, S. Mori, S. Tatsumi, M. Yasuda, K. Kudo and N. Sugita, *Bull. Chem. Soc. Jpn.*, **64**, 3017, (1991).

Cobalt-Catalyzed Photochemical Carbonylation of Allylic Amines, S. Mori, H. Matsuyoshi, K. Kudo and N. Sugita, *Chem. Lett.*, 1397, (1991).

Photochemical Carbonylation of Aromatic Aldehydes, S. Mori, K. Yoshida, K. Kudo and N. Sugita, *Chem. Express*, **6**, 779, (1991).

Enantioselectivity in the Ritter-type Substitution Reaction via Episulfonium Ion: Retention of Configuration, A. Toshimitsu, C. Hirose and S. Tanimoto, *Tetrahedron Lett.*, **32**, 4317, (1991).

Synthesis of Hindered Amine Light Stabilizers from 2,2,6,6-Tetramethyl-4-piperidine, S. Tanimoto, A. Toshimitsu and Y. Inoue, *Bull. Inst. Chem. Res., Kyoto Univ.*, **69**, 234, (1991).

Synthesis of Hindered Phenols and Hindered Phenolic Light Stabilizers, S. Tanimoto and A. Toshimitsu, *Bull. Inst. Chem. Res., Kyoto Univ.*, **69**, 249, (1991).

Synthesis of 6-Alkoxy-3-aryl-6-trimethylsilyloxy-5,6-dihydro-4H-1,2-oxazines and Their

Acid-catalysed Hydrolysis Leading to 3-Aryl-5,6-dihydro-4H-1,2-oxazine-6-ones and/or 4-Aryl-4-(hydroxyimino)butyric Acid Esters, S. Tanimoto, H. Matsumoto, M. Hojo and A. Toshimitsu, *J. Chem. Soc., Perkin Trans. 1*, 3153, (1991).

Asymmetric Carbon-Carbon Bond Formations by the reaction of "Chiral Episulfonium Ions" with Enol Silyl Ethers, A. Toshimitsu, C. Hirosawa and S. Tanimoto, *Chem. Lett.*, 239, (1992).

Preparation of Chiral Aziridines from Chiral Oxiranes with Retention of Configuration, A. Toshimitsu, H. Abe, C. Hirosawa and S. Tanimoto, *J. Chem. Soc., Chem. Commun.*, 284, (1992).

Synthesis of Ultraviolet Absorbers Having 2-Hydroxybenzophenone Moiety as the Functional Group, S. Tanimoto and A. Toshimitsu, *Bull. Inst. Chem. Res., Kyoto Univ.*, 69, 560, (1992).

Oxidative substitution of PhTe and PhSe Moieties in Alkyl Phenyl Tellurides and Selenides Leading to Esters and Alcohols, Y. Hirai, K. Ohe, A. Toshimitsu and S. Uemura, *Phosphorus, Sulfur, and Silicon*, 67, 173, (1992).

Isolation and Characterization of Stereoisomers of Pentacoordinated Phosphorus. Hydrolysis of Unsymmetrically Substituted Chiral Monocyclic Oxyphosphoranes, R. M. Moriarty, J. Hiratake, K. Liu, A. Wendler, A.K. Awasthi and R. Gilardi, *J. Am. Chem. Soc.*, 113, 9374-9376, (1991).

Lipase-Catalyzed Kinetic Resolution with in Situ Racemization: One-Pot Synthesis of Optically Active Cyanohydrin Acetates from Aldehydes, M. Inagaki, J. Hiratake, T. Nishioka and J. Oda, *J. Am. Chem. Soc.*, 113, 9360-9361, (1991).

Chemical Inactivation of Lipase in Organic Solvent: A Lipase from *Pseudomonas aeruginosa* TE3285 is More Like a Typical Serine Enzyme in an Organic Solvent than in Aqueous Media, T. Nakatani, J. Hiratake, K. Yoshikawa, T. Nishioka and J. Oda, *Biosci. Biotech. Biochem.*, 56(7), 1118-1123, (1992).

One-Pot Synthesis of Optically Active Cyanohydrin Acetates from Aldehydes via Quinidine-Catalyzed Transhydrocyanation Coupled with Lipase-Catalyzed Kinetic Resolution in Organic Solvent, M. Inagaki, A. Hatanaka, M. Mimura, J. Hiratake, T. Nishioka and J. Oda, *Bull. Chem. Soc. Jpn.*, 65, 111-120, (1992).

Overexpression and Purification of Asparagine Synthetase from *Escherichia coli*, A. Sugiyama, H. Kato, T. Nishioka and J. Oda, *Biosci. Biotech. Biochem.*, 56, 376, (1992).

Recent Studies on Structures of C-N Bond Forming Enzymes, H. Kato and J. Oda, *Nippon Nogei Kagaku Kaishi*, 65, 1786, (1991), in Japanese.

Structure Studies on Glutathione Synthetase from *Escherichia coli* B, H. Yamaguchi, H. Kato, Y. Hata, T. Nishioka, J. Oda and Y. Katsube, *Photon Factory Activity Report*, 9, 85, (1991).

Mutational and Proteolytic Studies on a Flexible Loop in Glutathione Synthetase from

Escherichia coli B: the Loop and Arginine 233 Are Critical for the Catalytic Activity, T. Tanaka, H. Kato, T. Nishioka and J. Oda, *Biochemistry*, **31**, 2259, (1992).

Loop Structures: Novel Functional Structure of Enzymes, H. Kato, *Baiosaiensu to Indasutori*, **49**, 844, (1991), in Japanese.

Crystal Structure and Functions of the Active Site of Glutathione Synthetase, H. Kato and J. Oda, *Seikagaku*, **64**, 181, (1992), in Japanese.

Enantiomeric Bleomycin Model Compounds Bearing Long Alkyl-Chain, K. Shinozuka, H. Morishita, T. Yamazaki, Y. Sugiura and H. Sawai, *Tetrahedron Lett.*, **32**[47], 6869, (1991).

Challenge of Chemistry against Cancer, Y. Sugiura, *Kagaku*, **46**[10], 666, (1991), in Japanese.

Heat-Induced DNA Cleavage by Esperamicin Antitumor Antibiotics, Y. Uesawa and Y. Sugiura, *Biochemistry*, **30**[38], 9242, (1991).

Synthesis and Characterization of Flavin Modified Oligodeoxyribonucleotide, T. Akiyama, F. Yoneda, K. Tanaka, J. Kuwahara and Y. Sugiura, *Nucleic Acids Res.(Sym. Ser.)*, **25**, 69, (1991).

Metal Binding and DNA Recognition in Transcription Factor Sp 1, J. Kuwahara, M. Futamura, N. Sogo, A. Yonezawa and Y. Sugiura, *Nucleic Acids Res.(Sym.Ser.)*, **25**, 121, (1991).

Synthesis and DNA-Cleaving Abilities of Functional Neocarzinostatin Chromophore Analogues. Base Discrimination by a Simple Alcohol, M. Hirama, T. Gomibuchi, K. Fujiwara, Y. Sugiura and M. Uesugi, *J. Am. Chem. Soc.*, **113**[26], 9851, (1991).

Man-Designed Bleomycins: Significance of the Binding Sites as Enzyme Models and of the Stereochemistry of the Linker Moiety, T. Owa, A. Haupt, M. Otsuka, S. Kobayashi, N. Tomioka, A. Itai, M. Ohno, T. Shiraki, M. Uesugi, Y. Sugiura and K. Maeda, *Tetrahedron*, **48**[7], 1193, (1992).

A Synthetic Model Approach to the Sugar Moiety of Bleomycin, M. Otsuka, T. Nishio, T. Oshitari, T. Owa, Y. Sugiura, K. Maeda, M. Ohno and S. Kobayashi, *Heterocycles*, **33**[1], 27, (1992).

DNA Cleavage by Eneidyne Antitumor Antibiotics, T. Shiraki and Y. Sugiura, *Kagaku to Seibutsu*, **30**[2], 119, (1992), in Japanese.

Active Oxygen and Drug Design, M. Uesugi and Y. Sugiura, *Kagaku to Seibutsu*, **30**[5], 314, (1992), in Japanese.

Functional Synthesis, Y. Sugiura, Gendai Kagaku 21 "Yūkigōsei no Saisentan", ed. by T. Mukaiyama, Tokyo Kagakudōjin Press, Tokyo, 147, (1992), in Japanese.

Binding of Tachyplesin I to DNA Revealed by Footprinting Analysis: Significant Contribution of Secondary Structure to DNA Binding and Implication for Biological Action, A.

Yonezawa, J. Kuwahara, N. Fujii and Y. Sugiura, *Biochemistry*, **31**[11], 2998, (1992).

A Total Synthesis of (–)-physostigmine, M. Node, A. Itoh, Y. Masaki and E. Fuji, *Heterocycles*, **32**,1705, (1991).

Chiral Nitroolefins for Enantioselective Reactions, K. Fuji and M. Node, *Synlett*, 603, (1991).

Synthesis and Characterization of Viologen-Modified Oligodeoxynucleofides, H. Ikeda, K. Tanaka, K. Fuji, Y. Iso and F. Yoneda, *Nucleic Acid Res. (Sym. Ser.)*, **25**, 99, (1991).

Memory of Chirality: Enantioselective Alkylation Reactions at an Asymmetric Carbon Adjacent to a Carbonyl Group, T. Kawabata, K. Yahiro and K. Fuji, *J. Am. Chem. Soc.*, **113**, 9694, (1991).

Synthesis and Properties of Oligothymidylate Containing Sulfur-Modified Thymidine: Effect of Thiation of Pyrimidine Ring on the Themonstability and Conformation of the Duplex, T. Ishikawa, F. Yoneda, K. Tanaka and K. Fuji, *Bioorg. Med. Chem. Lett.*, **1**, 523, (1991).

Successive 1,4- and 1,2-Additions of Organometallic Reagents to a Chiral Binaphthyl Ester: One Step Synthesis of Optically Active Ketones, K. Fuji, K. Tanaka, M. Mizuchi and S. Hosoi, *Tetrahedron Lett.*, **32**, 7277, (1991).

Binaphthyl as a Chiral Auxiliary: Diastereoselective Alkylation of Binaphthyl Esters of α,β -Unsaturated Carboxylic Acids, K. Fuji, F. Tanaka and M. Node, *Tetrahedron Lett.*, **32**, 7281, (1991).

Enantioselective Construction of Highly Functionalized Bicyclo(4,3,0) System Through Diels-Alder Cycloaddition, K. Fuji, K. Tanaka, H. Abe, A. Itoh, M. Node, T. Taga, Y. Miwa and M. Shiro, *Tetrahedron: Asymmetry*, **2**, 1319, (1991).

Synthesis of Viologen-Tagged Oligodeoxynucleotides, Y. Iso, F. Yoneda, H. Ikeda, K. Tanada and K. Fuji, *Tetrahedron Lett.*, **33**, 503, (1992).

Diastereoselective Diels-Alder Reactions with Chiral Sulfinyl Derivatives as Dienophiles under High Pressure, K. Fuji, K. Tanaka, H. Abe, K. Matsumoto, T. Taga and Y. Niwa, *Tetrahedron Asymmetry*, **3**, 609, (1992).

Synthesis of Viologen-Tagged Oligodeoxynucleotides, Y. Iso, F. Yoneda, H. Ikeda, K. Tanaka and K. Fuji, *Tetrahedron Lett.*, **33**, 503, (1992).

Hybridization of Oligodeoxynucleotide with Redox Coenzyme Model: Synthesis and Properties of Thymidine Decamers Covalently Linked to 5-Deazaflavin, Y. Eikyu, Y. Nakayama, T. Akiyama, F. Yoneda, K. Tanaka and K. Fuji, *Chem. Pharm. Bull.*, **40**, 291, (1992).

Asymmetric cis-Dihydroxylation of Olefins by Utilizing Chiral Bispiperazine, K. Fuji, K. Tanaka and H. Miyamoto, *Tetrahedron Lett.*, **33**, 4021, (1992).

Total Synthesis of (+)-Podocarpic and (+)-Lambertic Acids, X. Hao, M. Node and K.

Fuji, *J. Chem. Soc., Perkin Trans I*, 1505, (1992).

Synthesis and Characterization of Flavin Modified Oligonucleotide, T. Akiyama, F. Yoneda, K. Tanaka, J. Kuwabara and Y. Sugiura, *Nucleic Acid Res. (Sym.Ser.)*, **25**, 69, (1991).

Synthesis of 5-Deaza-10-senaflavin Derivative, A New Type of 5-Deazaflavin Redox Coenzyme Model, Y. Ikeuchi, K. Tanaka, X. Chen and F. Yoneda, *Chem. Pharm. Bull.*, **40**, 282, (1992).

Stereoselective Synthesis of β -Lactams by Oxidative Coupling of Dianions of Acyclic Tertiary Amides, T. Kawabata, T. Minami and T. Hiyama, *J. Org. Chem.*, **57**, 1864, (1992).

Polymer Chemistry

Birefringence of Amorphous Polymers. I. Dynamic Measurement on Polystyrene, T. Inoue, H. Okamoto and K. Osaki, *Macromolecules*, **24**, 5670, (1991).

Some Phenomenological Relations for Strain-Induced Birefringence of Amorphous Polymers, K. Osaki and T. Inoue, *Nippon Reorogi Gakkaishi*, **19**, 130, (1991), in Japanese.

Elastomer Engineering and Viscoelasticity, K. Osaki, *Nippon Gomu Kyokaishi*, **64**, 532, (1991), in Japanese.

Viscoelasticity and Birefringence of Polymer Blends, T. Inoue, S. Shibasaki, E. Takatori and K. Osaki, *Bull. Inst. Chem. Res., Kyoto Univ.*, **69**, 67, (1991).

Birefringence of Amorphous Polymers. III. On the Modified Stress-Optical Rule, H. Okamoto, H. Hayashihara, T. Inoue and K. Osaki, *Nippon Reorogi Gakkaishi*, **19**, 220, (1991), in Japanese.

Recent Progress in Polymer Rheology, K. Osaki, *Hyomen*, **29**, 902, (1991), in Japanese.

Birefringence of Amorphous Polymers. II. Dynamic Measurement and Relaxation Measurement, T. Inoue, H. Hayashihara, H. Okamoto and K. Osaki, *J. Polym. Sci.: Pt B: Polym. Phys.*, **30**, 409, (1992).

Birefringence of Amorphous Polymers. IV. Large Deformation of Polystyrene near Its Glass Transition Temperature, H. Okamoto, T. Inoue and K. Osaki, *Macromolecules*, **25**, 3413, (1992).

Self Diffusion and Viscoelasticity of Aqueous Detergent Solutions II. Effect of Salt Concentration, T. Yamamura, N. Nemoto, T. Shikata and K. Osaki, *Nippon Reorogi Gakkaishi*, **19**, 140, (1991), in Japanese.

Forced Rayleigh Scattering of Polystyrene-Polyvinylmethylether Mixtures, N. Nemoto, T. Yamamura and K. Osaki, *Bull. Inst. Chem. Res., Kyoto Univ.* **69**, 136, (1991).

Diffusion and Viscoelasticity of Polystyrene-Dibutyl Phthalate Solutions, N. Nemoto,

T. Inoue, K. Osaki, M. Kishine, T. Kojima and M. Kurata, *Nippon Reoroji Gakkaishi*, **19**, 181, (1991), in Japanese.

Diffusion of a Dye-Labeled Cetyldimethylamine Incorporated in Rodlike Micelles of Cetyltrimethylammonium Bromide in Aqueous Sodium Salicylate Solutions, N. Nemoto, T. Yamamura and K. Osaki, *Langmuir*, **7**, 2607, (1991).

Diffusion of PS in PS-PVME Mixtures, N. Nemoto, T. Yamamura and K. Osaki, *Nippon Reoroji Gakkaishi*, **20**, 25, (1992), in Japanese.

Viscoelastic Properties of Thread-like Micelles of Detergent in Solution, N. Nemoto and K. Osaki, *Kobunshi Kako*, **41**, 372, (1992), in Japanese.

Low-Energy Excitations in Amorphous Polymers, K. Inoue, T. Kanaya, S. Ikeda, K. Kaji, K. Shibata, M. Misawa and Y. Kiyanagi, *J. Chem. Phys.*, **95**, 5332, (1991).

Small Angle Neutron Scattering from Poly(vinyl alcohol) Gels, T. Kanaya, M. Ohkura, K. Kaji, M. Furusaka, M. Misawa, H. Yamaoka and G.D. Wignall, *Physica B*, **180/181**, 549, (1992).

A High Resolution Neutron Spectrometer Using Mica Analyzers and Pulsed Cold Source, K. Inoue, T. Kanaya, Y. Kiyanagi, S. Ikeda, K. Shibata, H. Iwasa, T. Kamiyama, N. Watanabe and Y. Izumi, *KEK Preprint*, **90-192**, 39, (1991).

Total Performance of LAM-80ET, K. Inoue, T. Kanaya, Y. Kiyanagi, S. Ikeda, K. Shibata, H. Iwasa, T. Kamiyama and Y. Izumi, *KEK Report*, **90-25**, 684, (1991).

Crystal Analyzer Type Spectrometer LAM-D at KENS Spallation Thermal Neutron Source, K. Inoue, T. Kanaya, Y. Kiyanagi, K. Shibata, K. Kaji, S. Ikeda, H. Iwasa and Y. Izumi, *KEK Report*, **90[25]**, 1082, (1991).

Structure Formation of Poly(ethylene terephthalate) During Annealing Process, M. Imai, T. Mizukami, T. Kanaya and K. Kaji, in "Slow Dynamics in Condensed Matter," ed. by K. Kawasaki et al., AIP, New York, 230, (1992).

Dynamics of Amorphous Polymers Near Glass Transition, T. Kanaya, T. Kawaguchi and K. Kaji, in "Slow Dynamics in Condensed Matter" ed. by K. Kawasaki, AIP, New York, 91, (1992).

Gelation Mechanism and Structure of Poly(vinyl alcohol) Gels, K. Kaji, T. Kanaya and M. Ohkura, *Kasen Kouensyu*, **48**, 17, (1991), in Japanese.

Neutron Scattering, K. Kaji, in "Purasutikku Ziten" ed. by K. Miyasaka et al., Asakura Shoten, Tokyo, 978, (1992), in Japanese.

Low Energy Excitations in Amorphous Polystyrene, T. Kanaya, K. Kaji and K. Inoue, *Physica B*, **180/181**, 814, (1992).

Dynamics in Amorphous Polymers, T. Kanaya, *Nippon Butsuri Gakkaishi*, **46**, 1035, (1991), in Japanese.

High Resolution Neutron Spectrometer LAM-80ET and Rotational Tunneling in 4-Methylpyridine N-Oxide, S. Ikeda, N. Watanabe, K. Inoue, Y. Kiyanagi, A. Inaba, S. Takeda, T. Kanaya, K. Shibata, T. Kamiyama, Y. Izumi, Y. Ozaki and C.J. Carlile, *J. Phys. Soc. Jpn.*, **60**, 3340, (1991).

A High Resolution Neutron Spectrometer Using Mica Analyzers and the Pulsed Cold Source, K. Inoue, T. Kanaya, Y. Kiyanagi, S. Ikeda, K. Shibata, H. Iwasa, T. Kamiyama, N. Watanabe and Y. Izumi, *Nucl. Instr. Methods Phys. Res. A*, **309**, 294, (1991).

Quasielastic Neutron Scattering on the Sol-Gel-Glass Transition of Atactic Polystyrene in Carbon Disulfide, Y. Izumi, T. Kanaya, K. Shibata and K. Inoue, *Physica B*, **180/181**, 542, (1992).

Dynamics of Polyethylene Studied by High Resolution Neutron Spectrometer LAM-80ET, T. Kanaya, K. Kaji, K. Inoue, S. Ikeda, K. Shibata, Y. Izumi, T. Kamiyama and M. Furusaka, *J. Phys. Soc. Jpn.*, **61**, 1984, (1992).

Intramolecular and Intermolecular Hydrogen Bondings of Poly(vinyl alcohol) in the Solid State, S. Hu, F. Horii and H. Odani, *Bull. Inst. Chem. Res., Kyoto Univ.*, **69**, 165, (1991).

High-Resolution Solid-State ^{13}C Nuclear Magnetic Resonance Study of the Combined Process of ^1H Spin Diffusion and ^1H Spin-Lattice Relaxation in Semicrystalline Polymers, T. Kimura, K. Neki, N. Tamura, F. Horii, M. Nakagawa and H. Odani, *Polymer*, **33**, 493, (1992).

The Characterization of Poly(ethylene terephthalate) Fibers by High-Resolution Solid-State ^{13}C NMR Spectroscopy, M. Ogasawara, K. Kouzai, H. Watanabe, T. Takada and F. Horii, *Kobunshi Ronbunshu*, **49**, 345, (1992), in Japanese.

High Resolution Solid State ^{13}C NMR Study of Poly(vinyl alcohol) Fibers with High Tenacity Spun from a Dimethyl Sulfoxide Solution or an Aqueous Solution, S. Hu, F. Horii, H. Odani, H. Narukawa, A. Akiyama and K. Kajitani, *Kobunshi Ronbunshu*, **49**, 361, (1992), in Japanese.

Cross Polarization/Magic Angle Spinning ^{13}C n.m.r Study of Solid Structure and Hydrogen Bonding of Poly(vinyl alcohol) Films with Different Tacticities, F. Horii, S. Hu, T. Ito, H. Odani, R. Kitamaru, S. Matsuzawa and K. Yamaura, *Polymer*, **33**, 2299, (1992).

Properties and Structure of Never-Dried Cotton Fibers. III. Cotton Fibers from Bolls in Early Stages of Growth, W. Tsuji, T. Nakao, A. Hirai and F. Horii, *J. Appl. Polym. Sci.*, **45**, 299, (1992).

Stereocomplex Formation between Enantiomeric Poly(lactic acid)s. 7. Phase Structure of the Stereocomplex Crystallized from a Dilute Acetonitrile Solution As Studied by High-Resolution Solid-State ^{13}C NMR Spectroscopy, H. Tsuji, F. Horii, M. Nakagawa, Y. Ikada, H. Odani and R. Kitamaru, *Macromolecules*, **25**, 4114, (1992).

A Polymer-Solvent Coupling and a Draining Effect; Possibilities to Resolve the Puzzle

on Universal Ratios in Dynamics of Dilute Polymer Solutions, Y. Tsunashima, *Polym. J.*, **24**, 433, (1992).

Dynamics of Dilute Polymer Solution in Couette Flow. Dynamic Light Scattering Experiments on Polystyrene-Latex Particles in Water, Y. Tsunashima and H. Odani, *Bull. Inst. Chem. Res., Kyoto Univ.*, **69**, 322, (1991).

Determination of Degree of Deacetylation of Chitosan by ^1H NMR Spectroscopy, A. Hirai, H. Odani and A. Nakajima, *Polym. Bull.*, **26**, 87, (1991).

Dynamic Light Scattering Spectroscopy and Polymer Dynamics, Y. Tsunashima, "Methods of Bio-Polymer Researches," Gakujitsu-Shuppan Center Pub., 197, (1992), in Japanese.

Particle Diffusion and Convection Observed by Dynamic Light Scattering from Aqueous Suspensions of Polystyrene-Latex Particles in Simple Shear Flow, Y. Tsunashima, *J. Phys. Soc. Jpn.*, **61**, 2763, (1992).

High-performance Dielectric Polymers from Cellulose Derivatives, T. Miyamoto, T. Sato, Y. Tsujii and Y. Kita, *Kasen Koenshu*, **48**, 7, (1991), in Japanese.

Fluorescence Spectroscopy for a Cellulose Trioctadecanoate Monolayer at the Air/Water Interface, T. Itoh, Y. Tsujii, T. Fukuda, T. Miyamoto, S. Ito, T. Asada and M. Yamamoto, *Langmuir*, **7**, 2803, (1991).

Preparation of Cellobiose Octa(n-alkanoate)s and Their Thermal Properties, A. Takada, T. Itoh, T. Fukuda and T. Miyamoto, *Bull. Inst. Chem. Res., Kyoto Univ.*, **69**, 77, (1991).

Characteristics of Cellulosic Thermotropics, T. Fukuda, M. Sugiura, A. Takada, T. Sato and T. Miyamoto, *Bull. Inst. Chem. Res., Kyoto Univ.*, **69**, 211, (1991).

Thermotropic Cellulose Derivatives Blended with Low-Mass Molecules, T. Kondo, T. Fukuda, T. Asanuma and T. Miyamoto, *Sen'i Gakkaishi*, **47**, 585, (1991).

Orientation-Dependent Interactions in Polymer Systems. 1. Segmental Orientation in Weakly Deformed Systems, T. Fukuda, A. Takada and T. Miyamoto, *Macromolecules*, **24**, 6210, (1991).

Conformation of Linear Aggregates of Thermally Denatured Ovalbumin, T. Fukuda, Y. Tsujii, T. Koseki, N. Kitabatake and E. Doi, *Macromolecules*, **24**, 6786, (1991).

Swelling of Poly(glycidyl Methacrylate) Gel Particles by Organic Solvents, T. Fukuda, N. Kohara, Y. Onogi and H. Inagaki, *J. Appl. Polym. Sci.*, **43**, 2201, (1991).

Preparation and Dielectric Properties of Cellulose Derivatives with High-Polarity Substituents, T. Sato, Y. Tsujii, M. Minoda, Y. Kita and T. Miyamoto, *Makromol. Chem.*, **193**, 647, (1992).

Multilayer Films of Chromophoric Cellulose Octadecanoates Studied by Fluorescence Spectroscopy, Y. Tsujii, T. Itoh, T. Fukuda, T. Miyamoto, S. Ito and M. Yamamoto,

Langmuir, **8**, 936, (1992).

Thermotropic Liquid Crystals Based on Chito-Oligosaccharides. 1. Synthesis of Chitobiose Octaalkanoates and Chitotriose Undecaalkanoates Undecaalkanoates and Their Thermal Properties, M. Sugiura, M. Minoda, J. Watanabe, T. Fukuda and T. Miyamoto, *Bull. Chem. Soc. Jpn.*, **65**, 1939, (1992).

Columnar Liquid Crystals in Oligosaccharide Derivatives II. Two Types of Discotic Columnar Liquid-Crystalline Phase of Cellobiose Alkanoates, A. Takada, T. Fukuda, T. Miyamoto, Y. Yakoh and J. Watanabe, *Liquid Crystals*, **12**, 337, (1992).

Chemical Modification of Cotton Textile Fibers for Use as a Material for Sports Underwear, Y. Tsujii, T. Miyamoto, Y. Onogi and H. Sakabe, *Dessanto Supōtsu Kagaku*, **13**, 148, (1992), in Japanese.

Lytotropic Mesophase Formations of HPC/imogolite Mixture, H. Hoshino, M. Yamana, N. Donkai, V. Sinigersky, K. Kajiwara, T. Miyamoto and H. Inagaki, *Polym. Bull.*, **28**, 607, (1992).

Orientation-Dependent Interactions in Polymer Systems. 2. Segmental Orientation in Binary Blends, T. Fukuda, K. Kawabata, Y. Tsujii and T. Miyamoto, *Macromolecules*, **25**, 2196, (1992).

Preparation of Chitoooligosaccharides and Their Functional Properties, M. Minoda, M. Sugiura and T. Miyamoto, *Kobunshi Kako*, **41**, 137, (1992), in Japanese.

Biotechnology in Fiber Industries, T. Miyamoto, A. Takada and T. Asanuma, *Sen'i Kikai Gakkaishi*, **45**, 231, (1992), in Japanese.

High-resolution Observation of Polymer Single Crystals with a Superconducting Cryo-TEM, M. Tsuji, M. Tosaka, A. Kawaguchi, K. Katayama and M. Iwatsuki, *Bull. Inst. Chem. Res., Kyoto Univ.*, **69**, 117–126, (1991).

A TEM Study on Poly(tetrafluoroethylene) Heat-treated on Alkali Halides, S. Yamaguchi and M. Tsuji, *Bull. Inst. Chem. Res., Kyoto Univ.*, **69**, 127–135, (1991).

Structures in Polymeric Fibers, K. Katayama, M. Tsuji, A. Kawaguchi, K.J. Ihn and H. Kawamura, *Kasen Koenshu*, **48**, 75–83, (1991), in Japanese.

Polymers observed with electron microscopes, M. Tsuji, *Kobunshi Kako*, **40**, 522–526, 574–579, (1991), in Japanese.

Polymorphism of a Long-chain Cycloparaffin (CH₂)₁₂₀, K.J. Ihn, M. Tsuji, A. Kawaguchi and K. Katayama, *Microsc. Res. Tech.*, **20**, 205–216, (1992).

Crystals of Synthetic Polymers Grown from Solution, M. Tsuji and S. Isoda, in "Sentan Zairyou Hyouka notameno Denshi Kenbikyou Gihou," Asakurashoten, Tokyo, 348–349, (1991), in Japanese.

Epitaxial Growth of Isotactic Polypropylene on Oriented Polyethylene from Solution, A. Kawaguchi, T. Okihara, S. Murakami, M. Ohara, K. Katayama and J. Petermann, *J.*

Polymer Sci., Part B. Polym. Phys. Ed., **29**, 683–690, (1991).

Crystal Structure of Stereocomplex of Poly(L-lactide) and Poly(D-lactide), T. Okihara, M. Tsuji, A. Kawaguchi, K. Katayama, H. Tsuji, S.-H. Hyon and Y. Ikada, *J. Macromol. Sci. – Phys.*, **B30**, 119–140, (1991).

An Application of a New X-ray Diffraction System with Imaging Plates to Studies on the Deformation Behavior of Ultra-high Molecular Weight Polyethylene, A. Kawaguchi, S. Murakami, K. Katayama, M. Mihoichi and T. Ohta, *Bull. Inst. Chem. Res., Kyoto Univ.*, **69**, 145–154, (1991).

Crystallization Behavior of Normal Long Chain Compounds on a Uniaxially Drawn Film of Isotactic Polypropylene, T. Okihara, M. Ohara, A. Kawaguchi and K. Katayama, *Bull. Inst. Chem. Res., Kyoto Univ.*, **69**, 101–110, (1991).

Biochemistry

Human Genome Information Analysis, M. Kanehisa, *Kagaku*, **61**, 828–830, (1991), in Japanese.

Supercomputer and Human Genome Analysis, I. Uchiyama and M. Kanehisa, *Byoutai Seiri*, **11**, 590–597, (1992), in Japanese.

Construction of a Dictionary of Sequence Motifs that Characterize Groups of Related Proteins, A. Ogiwara, I. Uchiyama, Y. Seto and M. Kanehisa, *Prot. Eng.*, **5**, 476–488, (1992).

An Assessment of Neural Network and Statistical Approaches for Prediction of E. Coil Promoter Sites, P.B. Horton and M. Kanehisa, *Nucleic Acids Res.*, **20**, 4331–4338, (1992).

An Approach to Systematic Detection of Protein Structural Motifs, Y. Matsuo and M. Kanehisa, *Comput. Appl. Biosci.: CABIOS*, in press, (1992).

Multiple Sequence Alignment by Parallel Simulated Annealing, M. Ishikawa, T. Taya, M. Hoshida, K. Nitta, A. Ogiwara and M. Kanehisa, *Comput. Appl. Biosci.: CABIOS*, in press, (1992).

A Knowledge Base for Predicting Protein Localization Sites in Eukaryotic Cells, K. Nakai and M. Kanehisa, *Genomics*, in press, (1992).

Introduction to Neural Network Chips, Y. Akiyama, *Comm. of Oper. Res. Soc. of Jpn.*, **37**, 342–346, (1992), in Japanese.

Modification of the N-terminus of Membrane Fusion-active Peptides Blocks the Fusion Activity, M. Murata, S. Kagiwada, R. Hishida, R. Ishiguro, S. Ohnishi and S. Takahashi, *Biochem. Biophys. Res. Commun.*, **179**, 1050, (1991).

pH-Dependent Membrane Fusion and Vesiculation of Phospholipid Large Unilamellar Vesicles Induced by Amphiphilic Anionic and Cationic Peptides, M. Murata, S. Takahashi, S. Kagiwada, S. Suzuki and S. Ohnishi, *Biochemistry*, **31**, 1986, (1992).

Fluorescent Rotors and their Applications to the Study of G-F Transformation of Actin, S. Sawada, T. Iio, Y. Hayashi and S. Takahashi, *Anal. Biochem.*, **204**, 110, (1992).

Structural Kinetics: Temperature-Jump Synchrotron Small-Angle X-Ray Scattering Study of Tobacco Mosaic Virus Protein as an Example, H. Inoue, Y. Hiragi, Y. Sano, K. Kajiwara, T. Ueki and H. Nakatani, *Bull. Inst. Chem. Res., Kyoto Univ.*, **69**, 92, (1991).

Structural Study of Biological Macromolecules using Synchrotron Radiation. Study of Biological Reaction Process by Small-Angle X-Ray Scattering Measurements, H. Inoue and Y. Hiragi, *Shimazu Hyouron*, **48**, 265, (1991), in Japanese.

Synchrotron Radiation and Structural Kinetics. Aggregation Process of Tobacco Mosaic Virus Protein as an Example, Y. Hiragi, *Seikagaku*, **63**, 351, (1991), in Japanese.

Overexpression, Purification and Crystallization of *Bacillus Cereus* Oligo-1, 6-Glucosidase, K. Watanabe, K. Kitamura, Y. Hata, Y. Katsube and Y. Suzuki, *FEBS Letters*, **290**, 221–223, (1991).

Structure of Acidic Phospholipase A2 for the Venom of *Agkistrodon Halys Blomhpffii* at 2.8Å Resolution, K. Tomoo, H. Ohishi, M. Doi, T. Ishida, M. Inoue, K. Ikeda, Y. Hata and Y. Samejima, *Biochem. Biophys. Res. Commun.*, **184**, 137–143, (1992).

Thermostable Alanine Racemase of *Bacillus stearothermophilus*: Subunit Dissociation and Unfolding, H. Toyama, N. Esaki, T. Yoshimura, K. Tanizawa and K. Soda, *J. Biochem.*, **110**, 279–283, (1991).

Distribution, Purification, and Characterization of Thermostable Phenylalanine Dehydrogenase from Thermophilic Actinomycetes, T. Ohshima, H. Tanaka, T. Yoshimura N. Esaki and K. Soda *J. Bacteriol.*, **173**, 3943–3948, (1991).

Thermostable Enzyme Retaining Activity even after Cleavage into Fragments, N. Esaki, *Tanpakusitsu Kakusan Kouso*, **36**, 1962–1963, (1991), in Japanese.

Thermostable Alanine Racemase of *Bacillus stearothermophilus* Construction and Expression of Active Fragmentary Enzyme, H. Toyama, K. Tanizawa, T. Yoshimura, S. Asano, Y-H. Lim, N. Esaki and K. Soda, *J. Biol. Chem.*, **266**, 13634–13639, (1991).

Purification and Characterization of a New NAD⁺-Dependent Enzyme, L-Tartrate Decarboxylase, from *Pseudomonas* sp. Group Ve-2, S. Furuyoshi, Y. Nawa, N. Kawabata, H. Tanaka and K. Soda, *J. Biochem.*, **110**, 520–525, (1991).

Transformation of Oleic Acid and Its Esters by *Sarcina lutea*, W. Blank, H. Takayanagi, T. Kido, F. Meusdoerffer, N. Esaki and K. Soda, *Argic. Biol. Chem.*, **55**, 2651–2652, (1991).

Glutathione Peroxidase Activity of Glutathione and Its Mechanism, N. Esaki, T. Oikawa and K. Soda, *Biomed. Res. Trace Elements*, **2**, 159–160, (1991), in Japanese.

Limited Proteolysis of Thermostable Alanine Racemase of *Bacillus stearothermophilus*, H. Toyama, K. Tanizawa, M. Wakayama, Q.-L. Lee, T. Yoshimura, N. Esaki and K.

Soda, *Agric. Biol. Chem.*, **55**, 2881–2882, (1991).

Catalytic Action of L-2-Halo Acid Dehalogenase of Long-chain L-2-Haloalkanoic Acids in Organic Solvents, A.K.M.Q. Hasan, H. Takada, N. Esaki and K. Soda, *Biotechnol. Bioeng.*, **38**, 1114–1117, (1991).

Thermostable Alanine Racemase: Structure and Functional Analyses, H. Toyama and K. Soda, *Nippon Nogei Kagaku Kaishi*, **65**, 1801–1805, (1991), in Japanese.

Total Conversion of Racemic 2-Chloropropionic Acid into D-Lactate by Combination of Enzymatic and Chemical Dehalogenation, A.K.M. Quamrul Hasan, K. Motosugi, N. Esaki and K. Soda, *J. Ferment. Bioeng.*, **72**, 481–482, (1991).

Fragmentary Enzyme with Activity, H. Toyama and K. Soda, *Iden*, **45**, 6–7, (1991), in Japanese.

Thermal Stability of L-Lysine- α -Oxidase from *Trichoderma* sp., E.V. Lukasheva, A.P. Zhukovskii, K. Soda and T.T. Berezov, *Biokhimiya*, **56**, 1069–1076, (1991).

A Selenium-Containing Peptide Glutaselenone: Its Glutathione Peroxidase Activity, T. Oikawa, N. Esaki, H. Ashida and K. Soda, *Biryō Eiyōso Kenkyū*, **8**, 75–80, (1991), in Japanese.

Degradation of L-Djenkolate Catalyzed by S-Alkylcysteine α,β -Lyase from *Pseudomonas putida*, H. Kamitani, N. Esaki, H. Tanaka and K. Soda, *J. Biochem.*, **109**, 645–649, (1991).

Decomposition of L-Selenodjenkolate Catalyzed by S-Alkylcysteine α,β -Lyase, H. Kamitani, N. Esaki, H. Tanaka and K. Soda, *Agric. Biol. Chem.*, **55**, 1659–1660, (1991).

Mechanistic Studies of Two Amino Acid Racemases of Broad Substrate Specificity from *Pseudomonas striate* and *Aeromonas caviae*, K. Reynolds, J. Martin, S.-J. Shen, N. Esaki, K. Soda and H.G. Floss, *J. Basic Microbiol.*, **31**, 177–188, (1991).

Biochemical Aspects of Selenium Amino Acids and Selenium Peptides, K. Soda, *Phosphorus, Sulfur, and Silicon*, **67**, 461–472, (1992).

Inactivation of Dimeric D-Amino Acid Transaminase by a Normal Substrate Though Formation of an Unproductive Coenzyme Adduct in One Subunit, A.M. Polo, T. Yoshimura, M.B. Bhatia, S. Futaki, J.M. Manning D. Ringe and K. Soda, *Biochemistry*, **31**, 6018–6023, (1992).

Reaction Mechanism of Glutamate Racemase, a Pyridoxal Phosphate-Independent Amino Acid Racemase, S.-Y. Choi, N. Esaki, T. Yoshimura and K. Soda, *J. Biochem.*, **112**, 139–142, (1992).

Biochemical Aspects of a Selenium Analogue of Glutathione, and Other Selenium Peptides, K. Soda, *Methionine Metabolism*, 115–119, (1992).

Structure and Function of Thermostable Alanine Racemase, H. Toyama and K. Soda, *Kagaku*, **47**, 146–147, (1992), in Japanese.

Thermostable Alanine Racemase: Structure and Function, N. Esaki, *Kagaku to Seibutsu*, **30**, 70–71, (1992), in Japanese.

Determination of Vitamin B6, T. Yagi and K. Soda, *Rinsyo Kensa*, **36**, 244–249, (1992), in Japanese.

Cross-talk between the Virulence and Phosphate Regulons of *Agrobacterium tumefaciens* caused by an Unusual Interaction of the Transcriptional Activator with a Regulatory DNA Element, T. Aoyama, M. Takanami, K. Makino and A. Oka, *Mol. Gen. Genet.*, **227**, 385, (1991).

Identification of Two Cell-cycle-controlling *cdc2* Homologs in *Arabidopsis thaliana*, T. Hirayama, Y. Imajuku, T. Anai, M. Matsui and A. Oka, *Gene*, **105**, 159, (1991).

Exon-intron Organization of the *Arabidopsis thaliana* Protein Kinase Genes *CDC2a* and *CDC2b*, Y. Imajuku, T. Hirayama, H. Endoh and A. Oka, *FEBS Letters*, **304**, 73, (1992).

Transcriptional Control of the Hairy-root-inducing Plasmid Virulence Genes in *Agrobacterium* Cells, A. Oka and H. Endoh, "Molecular Biology and Biotechnology of Genes in Plant Pathogens and their Hosts," The Phytopathological Society of Japan, 47, (1992).

Plant Protein Kinase Genes, A. Oka and T. Hirayama, *Kagaku to Seibutsu*, **30**, 207, (1992), in Japanese.

Site-specific Dissection of *E. coli* Chromosome by λ Terminase, H. Kotani, A. Kawamura, A. Takahashi, M. Nakatsuji, N. Hiraoka, K. Nakajima and M. Takanami, *Nucleic Acids Res.*, **20**, 3357, (1992).

The *HgaI* Restriction-Modification System Contains Two Cytosine Methylase Genes Responsible for Modification of Different DNA Strands, H. Sugisaki, K. Yamamoto and M. Takanami, *J. Biol. Chem.*, **266**, 13952, (1991).

Isolation of Chicken-*bek* and a Related Gene; Identification of Structural Variations in the Ligand-binding Domains of the FGF-receptor Family, M. Sato, T. Kitazawa, T. Iwai, J. Seki, N. Sakato, J. Kato and T. Takeya, *Oncogene*, **6**, 1279, (1991).

Structure-Function Relationships of Two Protein-Tyrosine Kinases; the *src* Gene Product and the Fibroblast Growth Factor Receptor, M. Sato, *Bull. Inst. Chem. Res., Kyoto Univ.*, **69**, 571, (1991).

Differential Screening of Ovarian cDNA Libraries Detected the Expression of the Porcine Collagenase Inhibitor Gene in Functional Corpora Lutea, T. Tanaka, N. Andoh, T. Takeya and E. Sato, *Mol. Cell. Endocrinol.*, **83**, 65, (1992).

Mitogen-induced Tyrosine-phosphorylated 41- and 43-kDa Proteins are Family Members of Extracellular Signal-regulated Kinases/Microtubule-associated Protein 2 Kinases, Y. Chatani, E. Tanaka, K. Tobe, A. Hattori, M. Sato, H. Tamemoto, N. Nishizawa, H. Nomoto, T. Takeya, T. Kadowaki, M. Kasuga and M. Kohno, *J. Biol. Chem.*, **267**, 9911–, (1992).

Tissue-specific Expression of Two Isoforms of Chicken Fibroblast Growth Factor Receptor, *bek* and *Cek3*, M. Sato, T. Kitazawa, A. Katsumata, M. Mukamoto, T. Okada and T. Takeya, *Cell. Growth Differ.*, **3**, 355, (1992).